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EDITORIAL

THE STANDARDIZATION OF HOSPITALS.

Already two preliminary surveys of hospitals in the United States have been made by the American Medical Association, and the third is under way. The present effort aims at being more complete than the early attempts, which depended largely upon information derived thru questionnaires sent to the hospitals themselves.

Each state has a committee from its Medical Society, with the object of a personal and careful inspection along certain definite lines. Some of the states have already shown progress in the object aimed at; so far as we know, the Louisiana Committee has not started.

There is much involved in the matter of hospital standardization. With the exception of certain municipal or largely endowed hospitals, the institutions in this country have generally been run haphazard and exigentially. Some reform has come with the dearth of interns and with the realization that efficiency depends upon organization. The American College of Surgeons has helped some thru the widespread membership in this body and because the frequent Congress of Surgeons has brought out the deficiencies of most of the hospitals in this country, accentuated to those local surgeons who have brought back with them the urgent need of reform in local institutions.

The intern situation has had some influence, too. Fewer graduates have made the hospital demand for interns greater and where formerly the intern sought the position, now the hospital is seeking the intern. The intern is therefore discriminating. A number of state examining and licensing boards is now requiring a proper intern service for full licensure and in some of these states the service of such intern is specified. The intern, therefore, is not satisfied to accept service in any but a first grade hospital.

The public is chiefly concerned, after all, and the maintenance of a first class community hospital means not only efficiency in its organization, but it means the best service to the public itself.

There is no selfish motive behind the move for hospital standardization; quite the contrary, for, the more efficient hospitals become, the less the work for the physician.

Louisiana is not above the need of reform in its hospitals—so far as first class standards are concerned. It is all the more important then, that the Hospital Committee of the Louisiana State Medical Society should get busy and aid in the national effort to make hospitals efficient and worth while to the profession and to the sick whom the profession serves.

ASHEVILLE MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

The Southern Medical Association will hold its Thirteenth Annual Meeting at Asheville, November 10 to 13. The absence of a meeting in 1918 should assure a large attendance. The scientific and social features of this organization are always sufficient to stimulate the members to come, and usually about twenty-five per cent are present.

The exceptional location, at Asheville, this year should make the meeting all the more attractive.

The preliminary outline published in the Bulletin of the Association promises four full days of interest and enjoyment.

Reduced rates on the regular Asheville round trip excursion basis will give some reduction, but what does the cost of the trip mean to anyone who has been to a Southern Medical Meeting in the last few years.

Special through sleepers to Asheville will leave New Orleans over the Louisville and Nashville at 8:20 a. m., November 9th and 10th, arriving in Asheville on the morning of the tenth and eleventh respectively, provided a sufficient number of berths are engaged.

Members of the State Society wishing reservations will please address the Secretary of Orleans Parish Medical Society, 141 Elk Place.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

CESAREAN SECTION.*

By JAS. T. NIX, Jr., B. S., M. D., M. A.,

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Cesarean (Cæsarian, Cesarian) section is the delivery of a fetus through an incision in the uterus.

Etymology.

Cæsar is a proper name—Greek, kaiser; German, kaiser; Russian, tsari; Polish, czar—all meaning emperor, king.

Cesarean, whether the term has any particular reference to any of the Cæsars of whether it simply represents a derivation of the Latin cædo, cædere, cecidi, cæsus—to cut—is still an unsettled question.

The highly imaginative public expects, and most readily attributes, miraculous birth or other supernatural characteristics to the lives of great men. We have the universally accepted, though historically equally unfounded belief, that the great Julius Cæsar was born by an abdominal section, and thence the operation derives its name. This, however, we know positively to be not true, but, no matter how definitely we might determine the origin of the term, no matter how accurately we might fix the nomenclature for the public, the decision has been made long ago. Blindly, without interrogation, believing all things possible of Cæsar, it has eagerly accepted as a truth this unfounded myth, despite the fact that history proves the contrary.

To substantiate this erroneous belief, Dorland's Medical Dictionary, 1906, describes the name as coming from the "Latin, sectio cæsarea, named from Julius Cæsar, who is said to have been thus born."

O'Malley and Walsh, Essays in Pastoral Medicine, 1906, state, "The operation, according to one opinion, takes its name from Caius Julius Cæsar, who it is said was brought into the world in this manner; this, however is a myth." No other opinion as to the etymology is given in this work.

At the time of Cæsar many of these operations were performed, but always on the dead mother, and we know from the best authori-

*Read at the Fortieth Annual Meeting, Louisiana State Medical Society, Shreveport, La., April 8, 9, 10, 1919.

lies that Aurelia, the mother of the great warrior, lived until her son had reached the height of his career.

If there is any virtue in the belief that the name of the operation comes from the Cæsars it could not apply to Julius Cæsar, but to one of the others.

Froude, "A Sketch of Cæsar," 1881, says:

"Roman etymologists could arrive at no conclusion as to the origin of the name. Some derived it from an exploit on an elephant hunt in Africa, Cæsar meaning elephant in Moorish; some to the entrance into the world of the first eminent Cæsar by the aid of a surgeon's knife, cæsus ab utero matris, literally, cut from the womb of a mother."

From Charles Anthon's Classical Dictionary of Proper Names of the Greeks and Romans, 1857, we are told, according to Pliny, "The first Cæsar was so called, quod cæso mortuæ matris utero natus fuerit, because he was born from the cut wound of a dead mother." There are many other theories advanced for the origin of the name, but the author believes that Pliny's fits best.

Therefore if Cæsarean, as applied to the operation, owes its origin to the abnormal birth of a Cæsar, it refers to the first eminent Cæsar, Caius Julius, grandfather of the great Julius, for which, however, we cannot find authority. It has no reference to the younger Julius Cæsar, as is so generally believed.

According to De Lees, Hirst and the standard text-books on obstetrics, the operation rightfully derives its name from the Latin caedo, to cut, and Cesarean simply means delivery by cutting. If this is true, then Cesarean section is tautology for section, from the Latin seco; secare means also to cut, and both words of the name convey the same meaning.

From this evidence the writer believes that Cesarean section owes its name to the Latin verb from which it is derived and has no reference to the Cæsars. A better nomenclature would be the Cesarean operation.

HISTORY.

Far back in the days of weird mythology we are told that Jupiter enamoured the beautiful Semele. Juno, inflamed with jealousy, resorted to a cunning piece of trickery and had the greatest of the gods appear before his sweetheart in all his radiant splendor, at her own request, and as he was wont to visit Juno. Immediately Semele was consumed in the flames, but Jupiter delivered from her six-months' pregnant womb the tender babe and sewed it in his thigh

until it was maturely born. So runs the story of the first Cesarean birth, Bacchus, the God of Wine.

Over 2,500 years ago our early Roman forefathers, under the leadership of Numa Pompilius, 715 B. C., had enacted into law a statute requiring the emptying of the gravid uterus before burying the dead mother. Present-day civilization very profitably could take lessons from this most modern law. Such an edict at present is unknown, though far more necessary than at the time of Pompilius.

Guy de Chauliac, 1363 A. D., physician for the Earl of Savoy, advised that the operation should be performed at once on the mother, who had suddenly died.

Shakespeare, keeping abreast of the times, describes the character, Macduff, as coming "from his mother's womb untimely ripped."

For idealism to-day, the world has made unlimited human sacrifice; therefore, slightly to offset this enormous loss, let us extend the strictest economy to this most important phase of the conservation of life—the saving of infants, unfettering of souls, the release of the living child from the womb of its dead mother. Cannot every successful doctor recall, from hospital or other experience, the death of at least one pregnant mother, where better judgment, prompter action, more relentless effort might have averted the dual calamity, one of the lives might have been spared?

In *ante-mortem* Cesarean sections the first was performed by Nufer, 1500 A. D., when he is said to have delivered his wife, after one dozen midwives and several barbers had failed.

In 1581, Rousset published ten successful cases.

Trautman, of Wittenburg, is accredited with having performed the first authentic case in 1610.

At this time the operation was not restricted to the doctors. It was very often performed by the priests and scholars, and not infrequently many of the lower classes were highly skilled in the art. In 1769, a negro slave performed the operation on herself and recovered, while a few years later a quadroon, fourteen years old, delivered herself successfully of twin babies, without mortality. In 1879, an Austrian woman, after being in labor for three days, delivered her baby by abdominal section with a razor. The womb and abdomen were sewed by neighbors, both mother and child getting perfectly well. During the same year, Felden saw the Cesarean operation performed by a native of Uganda, Africa, the technic being as follows: Hands of operator were washed with banana wine

and the patient made to drink of the same beverage—a form of anesthesia. A quick incision opened the womb and the woman was raised so as to empty the abdomen of escaped amniotic fluid. Cervix was now dilated from above and the incision sutured. The wound was then dressed with a paste of crushed herbs. Temperature never went above 101° F., and the wound healed by first intention in eleven days. (History of Medicine, Garrison, 1914.)

The best modern description of the operation is by Sanger, 1882. The technic suggested represents very good surgery today. Absorbent material is used on the uterus and three tiers of sutures are inserted in the uterine wall. A low median abdominal incision, extending to and above the umbilicus, is preferred.

The first successful cases in the United States are reported by Prévost, of Donaldsonville, La., 1830. Four Cesareans are cited, three terminating favorably for both mothers and children. William Gibson, 1835-1838, Boston, performed the operation twice successfully on the same patient.

In 1844, Kayser, of Copenhagen, reports that, prior to this date, of all recorded cases, there was a maternal mortality of 62 per cent, which was very low, considering the times. Tarnier, however, reports that there was not one successful case in Paris prior to 1881. For this reason, in all probability, the high-traction forceps of Tarnier became so popular. Spaeth, 1877, made the same statement concerning Vienna.

RECENT SURGERY OF CESAREAN SECTION.

Literature of the past decade is replete, surcharged, overflowing with articles in every nationality, treating the subject from all approaches. Some are meritorious, many are not, yet they all give testimony to the progress, rapidly increasing popularity and priority of this procedure in the treatment of the most complicated cases of labor.

Let us briefly review prevailing opinion.

Franklin S. Newill, **Journal of the A. M. A.**, February 24, 1917: "In some country districts a successful Cesarean operation has never been performed. Those occurring in the small hospitals around Boston show a mortality of 60 to 75 per cent."

He believes that one Cesarean operation should necessitate a second on the same mother.

Davis, **Southern Gynecology and Obstetrics**, Vol. 23, 1916: Two hundred and eleven cases are reported, with a gross mortality of 8 per cent. Of 151 selected cases, there was only one death, or six-tenths of one per cent. He insists that the case should be carefull studied before labor, and, when indicated, the operation should be one of election.

J. T. Williams, **Boston Medical and Surgical Journal,** March, 1916: Two thousand nine hundred and thirty-six cases of high forceps are analyzed. They were all taken from the most reputable maternity clinics, where they were handled by the best obstetricians. The maternal mortality is 1.2 per cent, the fetal 17.2 per cent. What appalling proportions would these figures assume in the hands of less competent men! From this the writer very justly concludes that the indications should include late primiparity, difficult breech, transverse, and face presentations, together with the numerous other conditions generally accepted. "The medieval superstition that 95 per cent of cases terminate spontaneously and that the most difficult high forceps applications, with its large infant mortality, are without injury to the mother, represent obsolete traditions." The ideal sought is 100 per cent maternal, with 100 per cent infant recoveries, and Cesarean more nearly approaches this perfection than any other form of abnormal delivery.

J. R. Young, **Journal of the South Carolina Medical Association,** December, 1916: Concerning the indications and technic, he cites the work of Nicholson, who reports 500 cases, with 1.3 per cent maternal mortality. The technic advised is practically that of Sanger, the low median abdominal incision passing to the left of the umbilicus. Brief mention is made of the high incision of Davis above the umbilicus. The following very clearly expresses the writer's opinion:

"In short, any obstetric situation that may confront us, whether it be a problem of mechanics, as an impacted shoulder presentation or urgent pathology, as toxemia, hemorrhage or poorly compensating heart lesion, should be an indication for Cesarean section, if it appears that the operation offers the best chance of life to mother and child."

Again: "When Cesarean section is absolutely indicated it should be done early, before the test of labor. It should be started with labor."

From this we see that the doctor considers it the operation of election and not compulsion. The mortality given by Young, viz., 23 per cent for the State of South Carolina and 20 per cent for the Lying-In Hospital of New York and Hirsch's clinic in Philadelphia, is discouragingly high.

Finally, William Mortimer Brown, **American Journal of Obstetrics,** Vol. 70, 1915, in his concluding lines summarizes the entire article: "We have only to look about us at the invalid women and defective children to be made to feel that, if the pelvic route was at first the ideal highway into the world, then some very serious errors have been made in the maintenance of that highway." And again: "Under proper conditions, the mortality from delivery by the abdominal route will be as low as from the simplest laparotomy, and the morbidity far less than from pelvic deliveries; infant mortality and morbidity resulting from the operation should be nothing."

It is obvious, therefore, that the Cesarean operation is no longer the hazardous life-or-death procedure that so recently it had been considered, but, according to the mortality, should be placed side by side with other major abdominal operations. We should no longer wait until the mother has almost expired, with possibly a dead fetus in utero, before resorting to this technic, but remember that uterotomy assures us 100 per cent saving of infants, with 95 to

100 per cent maternal recovery as well. Morbidity is *nil.* It is our solemn, binding duty, when the tent of death is pitched so near, to offer the greatest protection to both mother and child by giving them, before the appearance of dangerous complications, the choice of Cesarean section.

The records of the Charity Hospital of New Orleans from January 1, 1916, to June 30, 1918, inclusive, show:

Total confinements	1,718
Cesarean sections	23
Maternal deaths	7—30.6%

No infant mortality as a result of operation.

The ridiculously small number of Cesarean sections, together with the large number of maternal deaths, shows that the operation was only adopted as a last-resort procedure.

Unquestionably, had Cesarean section been practiced more liberally as elective instead of last-resort treatment, the death rate would have been far lower.

The Records of Hotel Dieu, of New Orleans, covering the same period of time, present:

Total confinements	318
Cesarean sections	57
Maternal mortality	7—14.0%
Infant mortality from operation	0

The mortality from Cesarean section is less than half that of the Charity Hospital, though still it is entirely too high. High forceps show a deplorably high infant mortality—66 per cent at the Charity Hospital and 51.6 per cent at the Hotel Dieu—branding it as unfair to the child.

In neither institution is there any record of the *post-mortem* delivery of a living child, except the one case to be reported later in this paper.

The number of *post-mortem* Cesarean operations on record in the entire United States during the past ten years is extremely small, probably less than ten.

Judging from the foregoing statistics, it is very plain that the lines of asepsis should be tightly drawn, all possible avenues of infection should be eliminated, decision should be prompt, and the operation performed as rapidly as possible, decreasing shock, if the mortality is reduced to where it belongs—1 to 5 per cent—the same as for other abdominal operations.

Report of Cases.

Name.	Age.	INDICATIONS.	When Cesarean Operation Given.	Result. Mat.	Result. Fet.	Days in Institution.	Date.	Sub-Normal Labor.
		Ante-Mortem Cesarean Sections.						
A. S.	20.	Primipara. Contracted pelvis; sac ruptured 48 hours; no progress; inertia uteri	Last resort	Cure	Cure	12	6/1/15	0
M. W.	34.	Primipara. Ruptured bag 48 hours; baby in utero, almost dead; mother exhausted	Last resort	Cure	Cure	10	2/23/15	1
M. P.	30.	Impacted shoulder; baby already dead; easiest route for mother	Last resort	Cure	——	9	8/22/16	0
S. J.	34.	Primipara. Undilatable cervix; immense baby (12 pounds..	Election	Cure	Cure	9	11/27/16	0
J. S.	35.	Contracted pelvis; primipara; inertia uteri; 72 hours labor..	Last resort	Cure	Cure	9	12/5/16	0
J. M.	25.	Placenta previa; patient almost exsanguinated	Last resort	Cure	Cure	9	4/2/15	0
M. D.	22.	Impacted breech; three attempts at instrumental delivery	Last resort	Cure	Cure	9	12/26/16	1
J. M.	32.	Primapara. Rupture of bag one week; no progress	Last resort	Cure	Cure	9	2/2/17	1
M. M.	20.	Primipara. Undeveloped pelvis; large baby	Election	Cure	Cure	9	3/28/17	0
M. M.	34.	Primipara. Rigid cervix; tubercular mother	Election	Cure	Cure	9	9/20/17	0
M. N.	32.	Primipara. Shoulder presentation; no progress after 48 hours' labor	Last resort	Cure	Cure	9	11/7/17	0
N. J.	30.	Impacted breech; 48 hours' labor	Last resort	Cure	Cure	9	12/20/17	0
L. S.	20.	Primipara. Forty-eight hours in labor; no progress; rigid parts	Election	Cure	Cure	9	11/29/17	0
M. C.	34.	Face presentation; labor 48 hours; no progress	Last resort	Cure	Cure	9	1/30/17	0
A. M.	17.	Underdeveloped primipara. Inertia uteri; exhausted mother..	Last resort	Cure	Cure	9	1/22/18	0
R. S.	24.	Face presentation; 36 hours' labor; no progress	Last resort	Cure	Cure	9	3/20/18	0
F. M.	32.	Primipara. Seventy-two hours' labor; no progress; early rupture of bag	Last resort	Cure	Cure	17	1/5/15	0
A. C.	20.	Placenta previa	Last resort	Cure	Cure	10	2/1/15	0
J. R.	38.	Hand presentation Seventy-two hours' labor; no progress...	Election	Cure	Cure	9	10/2/18	0
E. R.	35.	Hand presentation Seventy-two hours' labor; no progress...	Last resort	Cure	Cure	9	2/5/19	0
R. M.	34.	Primipara. Contracted Pelvis; inertia uterio; 72 hours' labor..	Last resort	Cure	Cure	9	2/10/19	0
		Post-Mortem Cesarean Sections.						
M. P.	38.	Mother died from eclampsia; dead five minutes; baby still lives			Cure		3/1/15	
		Cesarean Section on Moribund Mother.						
M. W.	30.	Mother in complete coma; septicemia, septic emboli; 7½ months' gestation; fetus viable and still alive			Cure		2/23/16	

Reviewing briefly the series here reported, one notes of the *ante-mortem* operations there is a maternal and fetal recovery of 100 per cent. One baby was dead in utero before the operation was begun, but in this instance uterotomy was considered the easiest route for the mother. One mother had already died and a *post-mortem* Cesarean saved the baby.

Sixteen of the twenty-one cases were referred cases. They had been repeatedly, unscrupulously examined, and, in eight of the sixteen, forceps had been unsuccessfully applied one or many times before a consultation was requested. All sixteen, therefore, might be considered infected from the very start, and the operation one of compulsion in place of election.

Three have subsequently become pregnant, labor terminating by spontaneous delivery without there being the slightest danger at any time of rupture of the uterus. This disproves the statement that one operation of this sort requires another for every subsequent pregnancy.

Union in all but two cases was by first intention, and the stay in the institution the same as for normal delivery—ten days. It is believed that the good results here obtained, under adverse conditions, were due to the special technic employed.

The moribund mother was only seven months pregnant, and was dying as a result of septic emboli; temperature 104°, pulse 150, in deep coma. The baby when born weighed only three and one-half pounds, but thrived and developed very rapidly. In all such conditions, whenever death of the mother is definitely certain, the child should be delivered promptly, as very often, especially in septic or toxic conditions, the fetus will die before the mother expires.

Concerning the *post-mortem* Cesarean section, the mother was dead five minutes when the section was made and a living child brought forth. In all such instances, where the mother is positively dead, never wait for local preparation of patient nor her removal to an institution, but deliver immediately in the bedroom or wherever she may be, using for a scalpel, razor, pocket-knife or other sharp instrument. Time is precious, for fetal death, when it does not precede or is not synchronous with, always follows very closely the death of the mother.

INDICATIONS.

Briefly, any complication in the course of normal pregnancy or labor where the life of mother or child or both is threatened, and

cannot be given an equal chance by other methods, constitutes an indication for Cesarean section. Whether it be placenta praevia, impacted breech, transverse presentation, late primipara, eclampsia, disproportions of mother and child, obstructing tumors, pelvic deformity, ill-health of mother where full-time pregnancy with difficult labor would seriously endanger her life or that of the child, as a grave heart lesion, pulmonary tuberculosis, or acute nephritis, any abnormal presentation which cannot be safely reduced to normal and blocks spontaneous delivery, singly or combined, one and all may represent just cause for the Cesarean operation. In all of these conditions, however, do not be too hasty for normal delivery is possible.

Preferred Technic.

The method considered best is the Sanger plus the following modifications:

1. The cervix uteri is completely dilated, so as to insure post-operative vaginal drainage.

2. A longitudinal median incision is made extending from the pubes upward to the left of the umbilicus, sufficiently long to deliver the uterus from the abdominal cavity.

3. Uterus is now delivered thru incision extraperitoneal, outside of the containing abdominal cavity. A special rubber sheet is stretched tightly around the uterus and as close as possible to cervix so that when the uterine cavity is opened the contents will be entirely dammed off from the highly sensitive peritoneum. Over this a second similar sheet is stretched so as to insure additional protection.

The protector consists of a large piece of rubber sheeting about two feet square in the center of which is sewed a small rectagular section of rubber dam. At the mid-point of this highly elastic tissue a small round opening is cut so that when stretching the opening the rubber protector may be made to fit snugly around the attached and smallest diameter of the womb, thereby completely excluding the uterus from the abdominal cavity.

4. A longitudinal incision four inches long, beginning at top of fundus and extending downward toward the cervix, is now made and the child delivered. The uterus is completely emptied of all membranes, clots, and possible fragments of placenta, and three tiers of continuous sutures are inserted in the mucous mem-

brane, muscle, and peritoneum, respectively. The sutures of each tier include a small part of the adjoining layer simply to give additional support.

5. Normal horse serum, 10cc., and pituitrin, 1cc., are given hypodermatically so as to favor coagulation and stimulate uterine contraction, thereby closing the large blood sinuses and preventing hemorrhage.

6. Abdominal incision is now closed in layer, either by separate continuous sutures in peritoneum, muscle, fascia, and skin respectively, or, whenever the utmost speed is required for the safety of the patient, the three lower layers are closed collectively by one continuous compound suture of strong chromicized cat gut, which tho inserted thru all layers at one time, approximates each one in turn.

7. As soon as the patient recovers from the anesthetic the sitting position in bed is adopted, in this manner insuring free drainage, complete emptying of the uterus, thereby preventing tension on the suture line, and, if infection does creep in, there will result a pelvic and not a general peritonitis.

8. Union by first intention invariably results and the case is treated as one of normal labor, being permitted to leave the institution on the tenth day.

By adopting the technic here described, the protecting screen is almost a guarantee for asepsis, even in the presence of a pre-existing infection; the compound abdominal suture insures safety and speed, the maximum time for the operation being twenty minutes, the minimum, sixteen minutes; every step in the operation is clearly visualized so that imperfect suturing, secondary hemorrhage, and other complications are entirely avoidable; the sitting position with anti-coagulants and oxytocics establishes drainage and prevents hemorrhage; the perfect tier suturing of uterus is an absolute safe-guard against uterine rupture in subsequent pregnancies, and, on the contrary, they are encouraged; maternal morbidity and infant mortality are nil, maternal mortality is less than two per cent.

Many children could be saved who, at the present time die; many mothers could be spared a long and tedious convalescence with resultant hopeless invalidism, if not an early grave.

The mortality should be the same as for other laparotomies and the operation one of election, priority, or choice.

Moral Laws.

From the most primitive times our early Pagan forefathers had the greatest respect for the pregnant mother and considered it a grievous sin to interfere in the course of normal pregnancy. In offering human sacrifice at the altar of the Gods, if the woman was with child she was always spared until the production of her fruit. The early Pompilian law "Lex Regalia" required emptying of the gravid uterus before burying the dead mother. The Augustinian Code absolutely prohibits punishment to be executed on the pregnant while one of the early sects of Hebrews, Talmudists, demanded the delivery of the child from its dead maternal parent to permit of baptism.

Many children could be saved who, at the present time die; many religions demand infant baptism for its own eternal salvation, when the mother dies before parturition, and in the early days Cesarean section was the only solution. Embryotomy, craniotomy, and any form of infant destruction are never justifiable, "Thou shall not kill", but are mere synonyms of the less acceptable Feticide, murder.

To this unfaltering opposition for any form of human destruction, to the insistent demand on the rights of the child, and to the requirement, infant baptism, does humanity owe a debt which the combined effort of all future generations never could repay.

Only until recent years, in many instances, contemporaneous medical opinion considered the demands unjustifiable, far-fetched, and based on wrong or no scientific principles. Time, however, has bridged the gap and to-day medical and religious teachings are practically the same.

The thousands of healthy Cesarean babies to-day, as they grow into robust manhood, let them reflect occasionally on the manner of their birth, and be told, if they do not know, that only a few years back their skulls might have been crushed or their bodies torn asunder, in the frantic efforts of man to save the mothers' lives. Let the aged mothers also recall, as they review the happy years of their extended lives, that, but for the Cesarean operation, these happy profitable years might have been lost in early graves.

But for moral influences, surgery in all probability would have lagged behind and not have perfected so rapidly the technic which stands to-day almost without mortality. These same robust men would have been slain as infants "in utero", if not buried in their maternal caskets,—unborn.

"Thou shall not kill". In the very first chapter of the first book of record, the Holy Scripture, we read "at the hand of every man will I require the life of man", and in the New Testament, "Thou shall not kill'. The child, if an aggressor, is an innocent one and cannot be sacrificed. Life is a Divine gift, the property of all, and no man's right to barter. In chronological order, Pagan, Hebrew, and Christian have stressed these teachings in unmistakable terms. It is the creed of no one sect but the religion of all.

RECAPITULATION.

From the foregoing we conclude:

Cesarean section derives its name from the Latin, caedo, caedere, cecidi, caesus, to cut, and not from Julius Cæsar as is so generally believed.

It is one of the most ancient surgical operations, at first performed only on the dead mother by scholars, priests, barbers, and, occasionally, the natives themselves; but synchronously with the development of medicine and aseptic surgery, the procedure has taken first place among major operations of the present day. By exercising good judgment and exquisite refinement of technic the mortality is reduced to that of the simplest laparotomy; the operation is one of priority, or election, and not of last resort.

The attitude of the church, condemning embryotomy and craniotomy, and demanding infant baptism with equal rights for mother and child, has been the one most prominent factor in so rapidly perfecting the technic employed to-day.

Cesarean section should not be decried a hazardous procedure and placed in the category of dangerous, unwarranted risks, but, when properly performed, should vie in low mortality with other abdominal operations and be labeled—Method of Choice. For the child it means life, for the mother—health, for the church—right, and for the doctor—the pleasure of having faithfully performed his most sacred duty.

DISCUSSION OF DR. NIX'S PAPER.

Dr. A. P. Crain, (Shreveport): I want to say that I do not know of any operation that is simpler and easier done, as the doctor has said,

than Cesarian section. It is certainly preferable to high forceps delivery where we know the chances of mortality as far as the child is concerned is high and extremely so to the mother. This operation is as simple as any in abdominal cavity. My experience has been along the line the doctor has brought out. Out of ten or twelve the mortality was one, and that was a woman who had been in eclampsia four days. In toxic conditions, in cases of contracted pelvis, cases of eclampsia, Cesarian section should be adopted. The mortality is small and I do not know of any operation that will give you a greater reputation. The laity generally look on this operation as very serious and if you do this in a small town they look upon it as a wonderful piece of surgery. It is a good piece of surgery, but it is simple. I remember once I was trying to break in a community where I was raised and could not do it. Finally a woman down there, with a contracted pelvis, had been in labor forty-eight hours, so they sent for one of our surgeons and he could not go and sent me. When I got down there I decided to do a Cesarian section. We boiled the instruments on the kitchen stove, used the dining room table for operating table. I saved the mother and baby and both did well. In that case there was no sanitarium there, but I do not say that the home is the best place to operate these cases. In this case I had to do it.

Dr. Levy: I am very much interested in the history of Cesarian section. The historical part is of importance, because most of us thought that Julius Cesar was brought into the world by section.

In eclampsia, placenta previa and deformed pelvis there is no doubt that Cesarian section is the best way of delivery. In deformed pelvis there is no argument—Cesarian section is the route of election. However, a paper on Cesarian section brings up the point, have we not been doing too many Cesarian sections? Take Dr. Crain's case, is it not possible the next baby this woman has that there will give a ruptured uterus? That is one of the objections to Cesarian. Even though it is a frequent danger I know of cases that Dr. Nix has delivered since the Cesarian section by the normal route. Cases of placenta previa in which Cesarian operation is done, can be safely delivered by the normal route afterwards if the patient is well made for normal delivery. I see no reason these patients should be delivered by Cesarian, but they will have to be closely watched. I recently saw a case of ruptured uterus in which the patient was waiting for delivery—it was not my case—the diagnosis was made of dead fetus, the patient was delivered by Cesarian section and when the abdomen was opened the uterus was ruptured and had been so for about five days. The patient was delivered by a hap-hazard Cesarian, and operation done for the ruptured uterus. The uterus was sutured to the abdominal wall, and drainage was instituted. This patient got well.

Dr. Nix uses in everyone of his cases horse serum to prevent bleeding. I spoke to him about that yesterday, and I am afraid that some day he may have anaphylaxis. For that reason I would not use it. especially when it is such an ordinary surgical operation and when hemorrhage can be so easily controlled with hemostats.

Dr. W. Kohlman: I am delighted to hear the gentlemen here so favorably inclined to this operation, although I think we ought to steer clear of it as long as we can. It is used in many cases of eclampsia, and of course there the mortality is high. Why should you use it in eclampsia unless you know the child will probably live? I think it

takes a great deal of careful selection in these cases. I believe we should be able to perform a Cesarian without any mortality except some emergency, but I am afraid that in a general way we are going too far. In some cases the operation will be necessary, but I am afraid the general trend will be to make obstetrics too surgical. I do not want to be understood as not favoring Cesarian section in some cases, but in other cases I think we are going too far.

Regarding rupture of the uterus, I think that is not important. I think the rupture is only to be considered in a case where there is a narrow pelvis. I have seen a number of cases where women who had been delivered by a Cesarian were again confined by the natural route, but in most cases she will have to undergo the Cesarian again.

Dr. J. T. Nix (closing): I never heard of a Cesarian section being performed at home before, but I think that unquestionably the country doctors should consider a post mortem in the home. I have no doubt that a number of babies could be delivered from dead mothers. A baby often lives five to fifteen minutes after the mother is dead, and if a Cesarian were performed immediately in many instances the baby could be saved.

The Cesarian operation is very spectacular, but it should not be done too quickly. Of the cases I have reported—21—three were my own cases and the rest were referred to me. In every case we tried other methods of delivery and it was impossible. The Cesarian operation was not a first resort procedure, but in a great majority it was the last resort.

As far as one Cesarian meaning a second, I do not think that is true. If you have a case of contracted pelvis that is all very good, but even in those cases very often if you have a small baby or deliver prematurely it will come through the natural route without any trouble. If we have rupture of the uterus following a Cesarian it is a reflection on the doctor. His technique is bad. The scar of Cesarean section should hold there as well as any place else. I think the life of the baby should be considered in all cases. There is no danger for the baby, therefore, if you have a mother who probably will not become pregnant again, it means a great deal to have the baby born alive. In those cases I think Cesarian section should be the operation of election.

A PLEA FOR THE MORE CAREFUL EXAMINATION OF GENITAL LESIONS.*

By DR. F. J. CHALARON, New Orleans.

The nation wide movement in the United States for the control and suppression of venereal diseases was given added impetus by the declaration of war. The National Government aware that in all armies venereal disease has always been the most prevalent disability affecting the individual soldier, and knowing that the highest military efficiency depends as much on good health as on

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proper training, set about to guard the soldiers' health. The war department, along with the hygienic measures to that end, launched an energetic campaign directed towards the control and suppression of the venereal evil. The measures taken were both repressive and educational.

It is not necessary to enter deeply into details concerning these measures since they are known to most of you, either from personal experience in the service, or from the prominence accorded them in both the lay and medical journals. This preamble reciting briefly the paternal action of the national government for the protection of its fighting men, brings us to our position in the fight being waged against the same evil by many municipal and state boards of health. As physicians, we are guardians of the public health, and as such should cooperate fully in any fight against disease. To my mind, education is the only method which promises a realizable measure of success in the attack against venereal disease. Ignorance and secrecy have been the foster parents of the venereal triad. If to general education in sexual hygiene there be added the establishment of free clinics and proper hospitalization for the treatment of those diseases, the success is almost certain. Admitting for the sake of argument that education of the mass offers the best means to this end, there arises the question, who will do the educating. Who does the educating in all matters medical?—The family doctor.

It is in furtherance of this educational crusade that a plea is made for the more careful examination of genital lesions. We know from statistics gathered in many hospitals and sanitariums that syphilis, in its various forms, is the original disabling factor in from 15 per cent to 20 per cent of all admissions. We also know that invasion of the nervous system by the *Treponema pallida* in many instances occurs at as early a period as one corresponding to the appearance of the Wassermann reaction, or to be plainer, at the time of the general invasion of the circulation by the parasite. This colonization of the nervous system may remain latent for years before the appearance of symptoms of neuro-syphilis are manifested. Neuro-syphilis is chosen to emphasize the necessity of closer scrutiny and early diagnosis, because while other forms of syphilis may be present without a clear history of former infection, it is among the neuro-syphilitic that we find the greatest number with a negative past. Further, because of its disabling

power and long duration it becomes an economic factor of the greatest importance to any community. Remember, this is only one of the many disabling forms of the protean disease. The possibility for the radical cure of syphilis in the primary stage is an established fact, if the disease is treated before the Wassermann reaction appears.

Hence, early diagnosis is imperative and this can only be obtained by the prompt detection of the *Treponema pallida.* To reach this objective all genital lesions should be carefully examined for the specific organism and no patient with such a lesion, no matter how apparently insignificant, be dismissed until a thorough microscopic examination has shown the absence of this organism. If the lesion is seen before it has been treated by the application of mercurial antiseptics, or by cauterization, a small drop of the serous exudate, examined by either the india ink, Tribondeau Fontana, or any other good method, will show many *Treponema P.* On the other hand, if treatment has already been instituted, especially if calomel or other mercurial has been used, the spirochete may not be found even after repeated examinations. In many instances, both the physician and the patient are misled into false security by the negative findings, and the foundation for a later neuro-syphilis is laid.

There are certain features which should always arouse our suspicion about a genital lesion. An erosion of the genitals in a patient whose last exposure was twelve or more days previous. Recurrence in a healed chancroid (mixed infections are quite common). Finally, ulceration of the meatus and fossa navicularis—these lesions are almost uniformly syphilitic. I am not speaking of the typical primary lesion with its induration, inguinal adenitis where the diagnosis imposes itself, I am speaking of this same lesion before it presents those symptoms, or when it is still in the pre-chancre stage. While more stress is laid on the examination of the genitals because of the relative frequency of that region as a site of infection, we should not overlook the possibility of a similar infection in other regions, *i. e.,* lips, mouth, fingers, etc.

In conclusion, I urge all physicians to examine, or to have all genital lesions examined microscopically, and never to consider such a lesion as of insufficient importance to warrant a rigid examination. Early diagnosis and vigorous treatment, not only remove from the community an active source of infection, but guard against the later malignant syphilis.

Discussion of Dr. Chalaron's Paper.

Dr. H. W. E. Walther: The more the urologist sees of any genital lesion the more pessimistic he becomes. Many doubt whether there is such a thing as a chancroid. I do not say that there is not such an identical sore infected with the Ducrey bacillus, but I do say that unless we adopt the dictum of scraping every lesion that comes to us we will fall down hard in many instances. The old dictum we were taught at school that a soft lesion was chancroid and a hard lesion was syphilis must be relegated to the junk heap. There is no fixed rule about the feel, look, odor or taste of the lesion. You must scrape them all, and if you do not you will fall into error.

One point the essayist did not have time to bring out is the idea of the urethral lesion, which does bear directly on the subject. Many of you have no idea how many times we meet chancres of the urethra, especially the male, and unless we examine these cases or refer them to a competent laboratory worker we will make mistakes. Urethral chancres are not as rare as the text-books would lead you to believe. Another thing is that after the lesions have been practically destroyed we still have involvement of the inguinal glands in many cases. By aspirating these glands sometimes a drop of the secretion will be found streaming with spirochete pallida.

Dr. William Edler: I believe the doctor's paper brought out something that he did not intend to bring out and has not thought of. I believe all of the older men who have been doing genito-urinary work will remember that we used to be taught that all syphilities were liars. It got into our literature, into our text-books, and it was due to the fact that, just as the doctor has stated in his paper, a diagnosis of syphilis had never been made. The individual had had some trivial, inconsequential lesion and his doctor told him it amounted to nothing, and he went away. The lesion disappeared and he carried his disease with him until finally syphilis entered into the picture maybe twenty or thirty years further on. We used to ask this neurologic case "Have you ever had syphilis," and he said "No," and we thought what a liar he was.

Another factor the doctor brought out is that we have in the treatment of syphilis a prophylactic factor that has not been discussed in this country. We can stop the spread of syphilis in an individual already infected. I mean we can stop the invasion of syphilis into his various anatomic units. We have learned in the last six or seven months that there is, even in the secondary stage of syphilis, as much as twenty per cent. involvement of the central nervous system, as shown by the cerebrospinal fluid in the way of pleocytosis. If you can catch the individual in his incipient stage and actually feed him with mercury or salvarsan or both and thereby stop the infection of his central nervous system you have accomplished a great deal.

In regard to the doctor's statement that laboratories should be established all over the country, I want to say that you will not probably be successful in establishing such laboratories where the members of this profession are not sufficiently interested to report their venereal cases, and you can only expect limited cooperation until the members of your profession will meet the government half-way. We will establish the laboratories whenever we can have your cooperation, I assure you.

Dr. C. M. Petty (Bonami): I am neither a laboratory man nor a genito-urinary specialist, but I want to say a few things from the standpoint of an ordinary practitioner. We were taught a good many years ago, before the days of the Wassermann, certain more or less fast rules in regard to the differentiation between syphilitic chancre and an ordinary chancroid. But it is not necessary to do these things so far as the diagnosis is concerned. Any physician of fair ability can make a diagnosis in practically every case of syphilis in a few minutes. It is only necessary to make a scraping from a chancre that has not been treated. It requires only a moderate amount of ability and paraphernalia, and the diagnosis could be made in practically every instance just as we would be able to arrive at a diagnosis in gonorrhea.

Dr. A. Nelken: I want to touch on the subject of the education of the physician. In the question of the prophylaxis of venereal disease the important thing is education. One who runs a large service as I have been doing for some years sees the importance of the instruction of the doctor on the subject of venereal infection. The cases we run into day after day are pathetic as a revalation of the lack of education of physicians on this subject. It is all very well to say the doctor ought to have a microscope and make his own examinations, but without intending criticism I would say that the average practitioner is not in position to make these examinations satisfactorily, even if he has the apparatus. A gram stain of the urethral discharge sounds very simple, but those who are in a position to know appreciate that very frequently even trained men make mistakes in their reports on pus slides. If we are to accomplish anything at all in this work we must educate the doctor. I have seen cases of tuberculosis and leprosy treated for syphilis. On the other hand, we commonly see syphilis treated for anything else before it occurs to the doctor that it might be syphilis. Doctors are not only careless with their patients, but with themselves. I remember not long ago a physician of considerable ability came to me with a rash all over his body. He had had a sore finger for six weeks and had had all sorts of explanations why it did not get well—he struck it on his automobile, he hit it on his desk, etc. The real nature of the lesion did not occur to him until he developed the general macular eruption. Even when the primary lesion of syphilis is in the classic location the doctor not uncommonly falls into error.

When I first studied medicine we were taught that you should never treat a patient for syphilis until you were sure of the diagnosis. That was before the introduction of salvarsan therapy. Today I think the rule should be reversed—that the patient should be given the benefit of the doubt and treated for syphilis. It is fairly well understood that the time to treat syphilis is in its incipiency. The Wassermann becomes positive as a rule only after the fourth to sixth week. That means the saturation of the system with the virus. The time to treat is before that saturation has occurred, because when the Wassermann is positive we must look for all the serious complications we get in syphilis. It ought to be the rule that if we are unable to make a diagnosis, if everything points to syphilis, the patient should be given the benefit of the doubt and treated for syphilis, because the danger from the treatment is incomparably less than the danger from the disease. Granted that the average doctor is not competent to make a diagnosis of syphilis or gonorrhea except in a very clear case, then if we are going to ac-

complish anything he should have access to laboratories where diagnosis could be made for him, and these laboratories should be run so they are at the disposal of the poorest as well as of the richest patient.

Dr. P. J. Gelpi: In considering the differential diagnosis between a syphilitic and a chancroidal sore, I think the point we ought to emphasize more particularly is the incubation period. We know that the incubation period of the chancroid is very short, only a few days. We know, on the other hand, that the incubation period of the syphilitic sore has been placed from ten to thirty-six days. Consequently if we get a sore in its early stage, in the first days of its appearance, and the sore is a soft one with all the ear-marks of the ordinary chancroidal sore, and we make scrapings, we will probably not find the spirochetes even if we have a mixed infection. In other words, it is possible that we will miss them. So we should lay stress on this possibility and not rest satisfied that the patient has not a mixed infection. Recently I had a number of cases which to all appearances were not luetic but eventually developed into a hard sore. My experience is that in cases of that kind we have some induration.

The point that has been dwelt upon is early diagnosis so as to institute early treatment; but the point I want to also emphasize is that whether this diagnosis is indicated or not, these patients may go on without a general eruption, without external signs, and still have throat and mouth symptoms of such mild character as hardly to attract attention, and it may be that only later will they find they have had syphilis. I believe these cases should be followed for a longer time than just one or two weeks, so as to make absolutely sure they are not infected with syphilis.

Dr. William Harris: I have had occasion at several previous meetings to go into this subject. I never hesitate to rise each time this is brought up for the reason that each time I have discussed it I have subsequently been impressed in the laboratory with the fact that men do not take advantage of the facilities for the microscopic examination of these lesions. Aside from the fact that they do not examine them, they put them in such a state that they are not capable of being examined. It is not infrequent that men are referred to us where the doctor has cauterized the lesion so that there is practically no vestige of syphilitic tissue to be found, and in addition they have shot them full of salvarsan and other treatments so that the possibility of determining anything by a Wassermann reaction is more or less interfered with. We may, of course, still try the lymphatic glands. I do not know of anything more distressing than to be consulted by a patient who has been so handled by the physician that he is practically incapable of being cleared up as regards the question of diagnosis until months have elapsed. It is almost criminal not to take advantage of the facilities and determine at an early stage whether the individual has syphilis or has not. It is distinctly within our power to arrive at a conclusion within the first few days or a week of that infection. I do not say that a man should simply be examined and if no treponema pallida are found he be turned loose, but he should be carefully examined again and again, and certainly in the course of time we can say that the lesion is or is not syphilis. Nothing is more desirable than the early diagnosis of syphilis, for we know that the invasion of the organism into the blood begins early. It is possible to examine the blood in the first week or so and find the organisms are circulating, as shown by Hartwell

through inoculation of the rabbit testis, still we do not have the organisms imbedded deeply into the tissues, we do not have invasion of the genital glands, of the viscera, vascular or nervous systems. I simply want to make a plea that aside from examining these men carefully, you do not put them in such condition that they are incapable of being examined further.

Dr. Frank Chalaron (closing): I want to thank the gentlemen for their thorough discussion. I made this point and still insist on it, that prompt diagnosis is imperative if we are to do anything in the campaign for the eradication of venereal disease. We physicians should educate ourselves first if we are to educate someone else—educate ourselves to the fact that any genital lesion should receive careful attention and an accurate diagnosis.

As to the question of all syphilitics being liars, we can readily understand, now that we have found these lesions in the pre-chancral stage, that they may last a few days and disappear and still the patient be syphilitic. How could we expect a lesion of that kind to make any impression on the mind of the patient. Fournier has said that the strange thing about neurosyphilis is that the patient has never had syphilis, and in sanitaria where neurosyphilitics have been examined the percentage giving a history of former syphilis is ridiculously low, between twelve and fifteen per cent.

REPORT OF CASE OF HYPOPITUITARISM.*

By ALLAN EUSTIS, M. D., New Orleans.

This is a case that has come under my observation since Dr. Englebach's demonstration before the Society and I bring it here simply to remind the members of the Society, that, as Dr. Englebach stated, the condition of hypopituitarism is often overlooked. This case I would never have recognized prior to his demonstration. I know very little about hypopituitarism and present the case in hopes that some member can throw some light on the condition.

Case Report:—Man 27 years of age, clerk in retail merchandise store.

Symptoms:—Loss of weight (30 pounds in 6 months), vertigo, soreness in epigastrium, acid regurgitation, coated tongue and nausea, foul breath. Appetite poor, sleeps well, urine frequent.

Family History:—Father alive at 70, in good health, mother 57, in good health. Only child. As a child he was subject to gastro-intestinal troubles and was reared by a wet nurse and on artificial food. Had measles, scarlatina and mild attack of "Flu" last fall followed by coated tongue and all above symptoms. Herniotomy by Dr. Allen five years ago. Stomach symptoms for past two months and getting progressively worse. Took calomel in March and ever since symptoms much worse. Has never had an erection of penis. Negative venereal, alcoholic and tobacco history.

Physical Examination:—He weighed 121½ pounds. Slender, hypertrophied and prominent forehead. Skin hangs loosely over hips and

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* Read at Meeting of Orleans Parish Medical Society, June 16th, 1919. (Received for publication Sept. 10, 1919—Eds.)

pubic region. Mentality that of a boy 15 years of age. Deposits of fat over dorso-cervical region and over fore-arms. Tongue coated, teeth O. K. Lungs O. K. Negative d'Espine sign. Heart rapid and marked tachycardia, but no murmurs. B. P. 90- 60— 30. Liver, G. B., spleen, appendix and both kidneys O. K. Patellar reflexes exagerated. Tonsils O. K. Testicles O. K. but penis rudimentary. Pubic hair O. K. Axillary hair O. K.

Clinical Laboratory Reports:—Urine, slightly acid in reaction, specific gravity 1020. Negative, albumin, sugar, diacetic acid and bile pigments. Urobilinogen present, excess of indican, trace of acetone. Microscopical, few hyaline casts, occasional pus cell, mucus, bladder epithelium.

Blood:—White blood cells, 9,552. Red blood cells, 5,260,000. Hemoglobin 70- 0.6%. Neutrophiles, 54. Small mono. 43. Transitional 3. No malarial plasmodium found.

This case was sent to Dr. Dimitry for examination of the eye backgrounds, and I will ask him to discuss this phase.

Wassermann reaction on blood made at Touro was negative. The skiagraph of the head taken by Drs. Samuel and Bowie shows a marked flattening and enlargement of the turcica.

The most interesting point in this case is that except for an initial purgative, the only medication he received was two grains of pituitary gland substance in tablet form three times daily, with a remarkable improvement in his symptoms in three days, and complete relief of all symptoms in ten days, while his mental aptitude has improved greatly and blood pressure has risen to 120.

Discussion of Dr. Eustis' Paper.

Dr. Ficklen. I would like to comment on this very interesting case. A few years ago I took a good many pictures of skulls and had occasion to study the X-ray appearance of the sella turcica. It is enlarged to an extraordinary degree in this instance. Since the patient shows deficient pituitary secretion it is evident that the gland is replaced by a growth. Dr. Dimitry remarked that the skull appeared hydrocephalic. This can be explained on the ground that any growth increases intracephalic pressure to a certain extent, and in this case the open sutures and anterior fontanel are not necessarily due to hydrocephalus, but may be caused by pressure increase from a large tumor.

Dr. Dimitry. The subject of the endocrines is chaotic, and there are few who know very much about these glands. Great research work and systematic studies will have to be made before we shall be near an appreciation of this complex problem.

The importance of the subject has so appealed to me that I at one time tried to stimulate more interest in it by proposing to the O. P. M. S. that we invite the members to read and discuss papers on the endocrines and allied subjects. The study was to have been systematically handled. Men were to have been selected from the different specialties to contribute on the subject, and these papers were to have been published jointly in book form and sold for the benefit of the domicile fund

of the society. I was told that such a scheme would have no success, for none of the members had any knowledge on the subject. I argued that the same was equally true throughout the world—and I still so argue—but that such a plan would stimulate research and that we would soon be leaders on the subject.

Dr. Eustis's paper is exceedingly interesting, and the case described is undoubtedly one of hypopituitarism. He has studied his case with his usual thoroughness, yet, like the studies of the surgeon of the thyroid gland, he looks no further back than the gland itself to account for the syndrome.

My query is "why is this pituitary gland hypofunctioning?" "Did it come about **de novo**; and if not, what caused it?"

I believe this case to be a syphilitic hydrocephalic hypopituitarism, and would like to ask Dr. Eustis if the had a Wassermann made.

We should always keep in mind that the endocrines are under the control of the vegetative nervous system, or that the reverse is the case, and that careful neurological studies are always in order, as well as the possibility of mechanical pressure, here undoubtedly present, occasioned by the luetic condition.

I wish to thank Dr. Eustis for permitting me to examine the case from an ophthalmological standpoint, and wish to state that the only feature of interest was a contracted field of vision in each eye.

Dr. Eustis (closing). I agree with everything Dr. Dimitry says. One of my hopes is to get at the cause. I do not know what is the cause. It is not a rare condition. Von Pirquet reaction was negative, so I do not know what was the cause. One interesting observation by Dr. Allen was that his head is increased markedly in size since he operated on him five years ago. His head circumference at present measures 38.

I presented this case, not with an idea that I know anything about it, but in the hope that by close study we may be able to learn some more about it.

TRANSDUODENAL LAVAGE.*

By A. L. LEVIN, M. D., New Orleans, La.

The subject which I am to bring before you to-night still has but a few admirers in the field of medicine; it is still in its infancy, unknown to many of us, and has not so far attracted the attention of the internist and surgeon, in spite of the fact that this method of treatment for various afflictions pertaining to the intestinal tract, is very simple in its application, based on good logic and promises to bring relief to the sufferer quicker than by any other methods we have used heretofore. The guilt of our sluggishness in grasping the good principles of a bowel flush from above when indicated for diagnostic or therapeutic purposes, can probably be

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laid at the door of the world's war which has carried the attention of the medical profession mostly into the field of medical military organization. Now with the war as a horrible drama of the past, and the medical men once more at their peaceful stations in life, it is time to turn our attention in that direction whence a voice from the pen of our gastro-intestinal leaders such as, Bassler, Rehfuss, Aaron and others, is reminding us of something good, something useful which has been advocated by Jutte of New York at various times since 1912.

In the past several months, familiarizing myself with the meager reports available in the literature on the subject, and applying in practice the method of transduodenal lavage, the good results obtained by me in several cases justify the announcement of this preliminary report.

The literature on the subject is still very limited; only about half a dozen articles have appeared since 1911. This method of treatment was first advocated by Gross in an article in the *N. Y. Medical Journal* (Jan. 28, 1911) under the title of "Direct lavage of the Duodenum." He then spoke of duodenal lavage, meaning extension of gastric lavage to the duodenum, that is, he injected water and recovered it by syphonage, and in some cases allowed it to remain in situ, where it became subject to absorption. In 1912, Jutte of New York conceived the Gross idea, but applied it in the form of a flush or enema through the upper end of the intestinal tract. Irrigation of the colon in the treatment of various disorders was and is considered valuable and is well known to us; a method of irrigating the small bowel, he considers will be welcome. To irrigate the small bowel, it is necessary to introduce a tube into the duodenum. The Einhorn and Rehfuss buckets, and the Szlapka's modification of the Einhorn could all be used with advantage for such purpose; but there are disadvantages; namely, there is usually some difficulty as the capsule reaches the level of the cricoid cartilage, the long time required for the slipping of the bucket into the duodenum and the method by which we determine our position in the bowel is not practical, as will be explained further in this paper. At the time of Jutte's first experiment, Bullinger and Von Oefele of New York were carrying on investigations with regard to the physiology of enteric secretions. They used a simple instrument which consisted of a 1/16 inch soft rubber tube 4 or more feet long, one end of which was weighted down by

a metal ball and about half inch above that, a number of openings were made; the other end of the tube was connected with a flask with two opposite openings. The efferent opening is connected with a suction pump fastened to a faucet. The modus operandi was as follows: after swallowing the tube, the patient lies down on his right side and drinks about 100 cc of water. The heavy end of the tube is soon brought near the pylorus; while the water is propelled onward by the peristalsis of the stomach, it carries along with it the end of the tube. To determine the position of the tube, the drawn up fluid was tested with litmus paper for its reaction. Jutte then used a 1:1000 medicated soap solution also hypertonic salt solutions. These observations then led him to believe that such treatment would be of decided benefit in obscure chronic cases where toxins are produced in the alimentary tract in the course of fermentation and putrefaction, such as biliousness, toxic albuminuria, chronic constipation, bronchial asthma, etc. He carried on his investigations along that line of treatment and reported again favorable results in a number of cases (Feb., 1913, *Jnl. A. M. A.*). He modified his technique and improved on the tube which now is known as the Jutte duodenal tube. The advantages claimed for the Jutte tube are as follows: Being filled with a stylet, it can be manually introduced like a stomach tube; it can be done in a doctor's office; the time required is only a question of minutes, not hours as with other types; the small size and light weight of the sinker permits it to slip into the bowel within a few minutes; no retention of the tube is necessary when it is used for duodenal feeding; it can be readily introduced for each feeding; the openings being in the soft rubber, injury to drawn up mucous membrane is minimized; large quantities of duodenal contents can be easily obtained in a short time; there is no discomfort to the patient. The litmus paper test has been discontinued for the reason that regurgitation of duodenal contents into the stomach will give a bluish tinge to the paper, and the red paper not have turned blue because an acid reaction in the upper part of the small bowel is not infrequent, especially if hyperchlohydria exists. He points out that the stomach content is watery, the duodenal is syrupy, tenacious and stringy. This alone is a sufficient guide as to the position of the tube. In gastric catarrh or in case duodenal fluid regurgitated into the stomach, he draws off first all the fluid possible and instructs the patient to drink water again. Then with the appearance of

syrupy fluid, we know we are in the duodenum. It is done on an empty stomach, the pylorus is patulous, and tube in a few minutes or the most 15, slips into the duodenum; a fountain syringe is then connected and the Jutte solution at a temperature of 100 or 105 F. is then introduced; from 1000 to 1250 cc is allowed to run in. The patient is turned on his back, light abdominal massage is practiced and a rest is given every now and then, not to cause too sudden distension of the small bowel. The flow is regulated so that it should take about 10 minutes for the quantity to flow in. To bring about the closure of the pylorus at that moment and thus prevent regurgitation of the fluid into the stomach, a small quantity of ice-cold milk with crushed crackers in it can be given. The nature of the case will determine the kind of fluid to be used. When it is the desire to cleanse the bowels thoroughly, a saline of 9 gr. to 1000 cc at body temperature is given. To flush out the kidneys, plain distilled water is used. In icterus and when digestion is impaired, 0.5 gr. of pure castile soap to 1000 cc of saline is beneficial; astringents can be added in catarrhal enteritis, quinine and ipecac in solution probably in amebic dysentery. The fluid should enter the bowel at body temperature, and increase in fluid temperature will cause a corresponding increase in pulse and tension. The good effects of such a flush is the thorough removal of intestinal toxemias. Catharsis cannot do the work of such a lavage which reaches and cleanses every part of the small intestines.

In May, 1917, Jutte wrote an article in *Am. Jnl. of Med. Sc.* on "Auto-intoxication and its treatment by transduodenal lavage." As we know auto-intoxication occurs in two forms, the hystogenic and enterogenic. The hystogenic form is caused by the abnormal function of the antitoxic glands and the tissues; and the enterogenic—by the abnormal action of the digestive enzymes or bacteria upon the food. The result is the absorption of the toxins into the blood. In both forms, the gastrointestinal tract is the principal channel of elimination. The Metchnikoff and the elimination treatments are the most generally employed. The Metchnikoff method of introducing the *Bacillus bulgaricus* into the intestinal tract can only be applied in alkaline putrefaction; it is contra-indicated when volatile fatty acids or their derivatives are at fault. Colon irrigation and purgation is our salvation; but colonic irrigation does not reach the small intestines, nor can we wash clean a filthy convoluted tube 22 feet long in 4 to 6 ounces of a purgative fluid; a quart of a purga-

tive non-absorbable fluid without causing any discomfort to the patient will certainly wash well the entire alimentary tract. The transduodenal lavage is then the ideal method for such cases. The solution must be non-absorbable and the original Jutte solution has given best results in the cases reported by Bassler. It consists of 9 grammes each of sod. chloride and sod. sulphate, 4 cc of a 7 or 10% alcoholic solution of phenolphthalein, a teaspoonful of sod. bicar. is added if acidosis is suspected, and 1000 cc of water.

C. D. Aaron (*Med. Rec.,* Aug. 17, 1918) in the treatment of intestinal stasis by duodenal lavage, uses 30 grammes of mag. sulphate and 60 grammes of sod. sulph. in a litre of water. The lavage is given daily for 10 days as a first series of application; then on alternate for another 10 days, and the third series follows at intervals of 3 days. Continue with one lavage a week until recovery is fully established. There are no unpleasant by-effects and patients tolerate the treatment very well. Aaron claims that there has not been a single failure in any of his cases of intestinal stasis and incidentally, also of constipation, in spite of the existence of kinks and adhesions. He draws the following conclusions: 1. That kinks and bends are not necessarily the cause of intestinal stasis and consequently their surgical removal will not cure stasis. 2. That any other pathologic condition really caused by intestinal stasis should disappear after successful duodenal lavage treatment. If they do not disappear, the condition was not due to intestinal stasis. He advises to adopt this method on a wide scale in order to investigate the above conclusions, which are left open for criticism.

In July, 1917, Jutte in another article dwells on his technique for office practice with or without oxygen insufflation. In Nov., 1918, Rehfuss in an article in the *Med. Clinic of N. A.* discussing the pathology and treatment of biliary affections, advocates strongly the study of duodenal contents from chemical and bacteriological standpoints, and recommends highly the method of direct lavage of the duodenum in addition to the autogenous vaccine treatment. Bassler (Jan., 1919, *Southern Medical Journal*), praises this method of treatment in ulcerative colitis, some forms of parasitic infections of the colon and postoperative ileus. He reports a number of very interesting cases with complete recovery when other methods of treatment have previously failed. His conviction

in the superiority of this method conveys a message to the surgeon that in the distressing cases of postoperative ileus, this mode of procedure will bring them much happiness, for the adynamic state of the bowels or an existing reverse peristalsis, will be quickly corrected by a duodenal flush. To this brief review of the literature on the subject, I wish to add my preliminary report on the following cases:

Case 1. V. Y. 52, carpenter, consulted me on March 3, 1919, giving the following history:—Past 6 months stomach trouble, began with very sharp pain in epigastrium, not always dependent on food, but aggravated by exertion. Recumbent position would give some relief. Of late, pain constant. When trouble first began, there was nausea and vomiting of mucus, no blood, off and on during the day, worse in the morning; never vomited food. At time of consultation, there was no vomiting, but the principal complaint was constant sharp pain in the epigastrium. Bowels were constipated; insomnia was present; appetite good, but afraid to eat. Lost 5 pounds in weight; normal weight being 124. Exam.—H. & L. neg. Mechanical teeth; pain on pressure in upper right abdominal quadrant, epigastrium very tender and rigid. Conjuctivae somewhat yellow, temp. 99, urine neg. Test breakfast suggests hypermotility; quantity obtained after one hour very small, HCL strongly present; microscopical of contents neg. X-ray—stomach high up, pylorus and duodenum pulled over in the region of gall-bladder, marked irritability, extreme degree of hypermotility through the stomach and small bowel suggesting very strongly gall-bladder trouble; evidence of colonic stasis. Wassermann test was not made, no suspicion of any venereal disease. Occult blood test—neg. Diagnosis—very suggestive of a chronic cholecystitis, with adhesions of gall-bladder. Transduodenal lavage with original Jutte's hypertonic solution was instituted every other day; 10 irrigations were given with remarkable improvement. There is no epigastric rigidity, there is no pain, he is on full diet and enjoys his meals, he sleeps all night without awakening and his bowels are well regulated. He still gets one irrigation a week and he has returned to work after a period of 9 months illness.

Case 2. L. C. C. 40, physician. From early childhood was a sufferer from gastro-intestinal irritation caused evidently by oxyuris vermicularis; at times the irritations would be so strong that it would almost cause spasms; he would suffer from a burning and itching sensation in the rectum. Later on in life, those irritations seemed to disturb him very little up till 2 years ago, when he had a sudden pain in the left lower abdomen; it was so severe that volvulus was suspected at that time; later on the pain shifted to the right side of the abdomen. From that time on, he began to suffer from periodic attacks of severe pain, located in the right lower abdominal quadrant, radiating to the back and along the right thigh, at times accompanied by severe abdominal cramps followed by diarrhea, with a quantity of mucus in the stools; on several occasions, oxyuris was found in the stool; each attack would bring on tachycardia, extreme nervousness, burning and itching sensation in the lower bowel, with other symptoms suggestive of a spasmodic contraction of the descending colon. Examination revealed nothing of great importance except a slight degree anemia; specimens of stool

examined several times did not show oxyuris ova. X-ray plates are somewhat suggestive of a chronic appendicitis.

A very annoying feature in this case was the accumulation of large quantities of gas in the intestines, retention of which would give rise to severe cramps. He had to be extremely careful in his diet. Diagnosis—Doubtful; probably chronic intestinal parasitic disease (oxyuris), causing spasmodic contractions of the colon and the possibility of a chronic appendicitis should be borne in mind. The patient has been relieved considerably by transduodenal lavage, there is no abdominal distension, he is not annoyed by passing of flatus, he can select a more liberal diet without any disturbance, has gained 5 pounds in weight in the last 2 months, and there is an improvement in the percentage of hemaglobin. A point of interest is the fact that after 2 such irrigations, pin worms were found in the stools.

Case 3. Mrs. M. M. 58, housewife. Admitted to hospital on May 14, 1919. Has had gastric disturbance since her girlhood at irregular intervals; never been jaundiced; mental strain would bring on gastric disturbances; nervous off and on for the past 12 years. Attack of nervous breakdown in February, 1919; heart beat at times, 168 per minute; the main features of her stomach disturbances were frequent belching and regurgitation of small amounts of bitter yellow fluid resembling bile; it would wake her up from her sleep and she would regurgitate that fluid. She also suffered from a peculiar pressure in the epigastrium; very uncomfortable several hours after meals and she claimed that she could not digest any fat, as it would appear in the stools. Examination—L. neg.—H. somewhat rapid, first sound not clear, abdomen relaxed, no palpable tumor, reflexes somewhat exaggerated, general appearance pale and somewhat anemic. Test breakfast—fractional analysis—absence of HCL; examination of stools—excess of fat. Diagnosis—Achylia Pancreatica, with reverse peristalsis. Daily transduodenal lavage was instituted in connection with doses of HCL and pancreatin. Patient is improving rapidly, there is no regurgitation of bile, the reverse peristalsis has been evidently corrected. It is not necessary to administer any drugs for correction of her constipation which existed before.

Two other cases, one of mucous colitis and another of nausea nervosa were also greatly benefited by this method of treatment. I do not mention their histories in detail for lack of time. These few cases should impress us with the value of such treatment in a selected group of cases, bearing in mind the simplicity of procedure. I am carrying on investigations along this line of treatment in a number of cases and will report results in the future. The slight modification I have introduced consists of withdrawing the stylet as soon as the tube passes the level of the cricoid cartilage and the tube easily slips down by advising the patient to take small sips of water; beginning with the second or third irrigation, the patient is trained in to swallow the tube without the stylet. The position of the patient during the irrigation can remain the same, on the right side, without any bad effects.

Discussion of Dr. Levin's Papers.

Dr. Allan Eustis: I have been very much interested in Dr. Levin's discussion for more than one reason. I have been using a Jutte duodenal tube for the past four years, similar to the one described by Dr. Levin. They are much easier to swallow than the larger stomach tubes and I have discarded the latter in favor of Jutte's, in all gastric cases for some time, but I have to use the stylet, at times in introducing it.

As far as transduodenal lavage is concerned, I have tried it on several cases with excellent results temporarily. I have been particularly interested in Jutte's work in cases of asthma, which bears out my original contention that this condition is due to toxemia. However, I have not found it necessary to resort to transduodenal lavage in such cases, as they usually yield to dietetic measures. Also in mucous colitis, transduodenal lavage is simply a palliative measure and for a cure the cause must be removed. In certain cases of pyloric stenosis it may be very difficult to get the tube into the duodenum, also in cases with marked gastric atony. In such cases after the position of the stomach has been determined by scratching auscultation, the tube is swallowed only so far as the the lesser curvature of the stomach, when the patient is instructed to lie on the right side and continue the swallowing of the tube. The tip will fall into the pylorus. In certain cases the duodenal contents can be obtained in ten minutes, but in others it may take twenty-four hours.

Instead of a bottle as shown by Dr. Levin, I use an ordinary glass syringe with asbestos plunger in withdrawing gastric contents. The other day at the office we withdrew 335 cubic centimeters of gastric contents just through this little tube and with an ordinary one ounce glass "Triumph Aseptic" syringe. There is rarely any retching while withdrawing contents.

The main point I wish to emphasize is that instead of using transduodenal lavage in the treatment of asthma, mucous colitis or intestinal toxemia due to some mechanical obstruction, it is far more rational to determine and remove the cause of the condition than to attempt to simply relieve one symptom.

Dr. B. Guthrie: I have had no experience with the particular tube that Dr. Levin is now using. I agree that the smaller tube is a preferable type of stomach tube for extracting contents for analysis. It is an instrument that is much more easily borne by the patient, than the larger tubes we formerly used.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE

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A BRIEF ACCOUNT OF YELLOW FEVER IN GUAYAQUIL.*

By WENCESLAO PAREJA, M. D., Guayaquil.

GEOGRAPHY.

Guayaquil, the capital of the province of Guayas, is situated on the left bank of the Guayas River, 42 kilometers above its mouth. It is the principal port of the Republic, as through it passes the larger part of the country's exported products.

The drainage system of the Guayas River is formed by a number of affluents which, rising on the western slope of the Andean cordillera, run more or less parallel to each other and also to the cordillera itself for a distance of approximately 150 kilometers, ending in two large tributaries,—the Grande River and the Daule River, which unite at Guayaquil, forming the Guayas. Of all the numerous tributaries of these two rivers, only one flows from east to west, the Yaguachi; the others flowing more or less regularly from north to south and uniting a number of times between each other, forming large islands or peninsulas of fertile bottom land as a result of the alluvial deposits of these rivers.

Upon the banks of the rivers of this system are situated towns of considerable importance in the two provinces of Los Rios and Guayas,—such as Babahoyo, which is the capital of the Province of Los Rios; Vinces, Catarama, Caracol, Ventanas, Baba and Quevedo, on the tributaries of the River Grande; Daule, Colimes and Balzar, on the River Daule; Yaguachi, Milagro and Naranjito, on the River Yaguachi and its branches.

All the lands of this extensive valley are very low; occasionally low hills, some of which are of granite, break up the horizon. The islands and peninsulas thus formed by this deposit of rich alluvial mud are generally somewhat higher on their banks than at the center—a difference of but a few feet, but sufficient difference so that nearly all of these large areas are more or less at sea level. So there exist between these rivers two zones of different levels;—the zone along the river banks being high, fertile, and frequently cultivated, the products being cacao, coffee, and other

* Read by title.

tropical fruits,—while in the central lowland zone it is impossible to carry on any permanent cultivation. In some places this central zone is adapted to rice growing, but the greater part of this area consists of uncultivated lands covered with shrubs, bushes and vines which during the four or five months of the rainy season are flooded. These areas then virtually become lagoons which communicate with the rivers by natural channels.

On approaching the cordillera of the Andes, toward the north and east, the ground rises somewhat and the vegetation becomes more dense, finally being virgin forest, rich in woods adapted to construction purposes, and where are found rubber trees and all the rare plants indigenous to such a dense floral region. As you ascend higher, you arrive at the foothills of the Andean cordillera, where the vegetation is less dense. Here the rivers are no longer navigable, being simply torrents rushing down through steep and rocky channels. The insects disappear, and in a few kilometers you pass from a torrid zone to a temperate and agreeable climate.

Below Guayaquil, as far as the mouth of the River Guayas (Mondragón Island), all the land is uniformly low, covered by a dense growth of mangle (Rhizophora Mangle). The high tides constantly inundate these large areas, and no towns exist along the banks.

Climate.

Situated, as is this drainage system of the River Guayas, between the first and third degrees of south latitude, and at sea level, its climate is absolutely tropical. The influence of the sea breezes is felt but little, so that the temperature is more or less uniform, in the cool season being about 10° C., and in the warm season about 33° C. This occurs exactly in the rainy months of December to April,—by the inhabitants called winter (astronomically summer). The rainfall, however, varies throughout the region, for there are zones in the vicinity of the cordillera, covered by dense forests, where it rains the whole year. On the other hand, in the coastal littoral it rains but little, and some years not at all.

Races.

It would be difficult to describe exactly the ethnological type of the inhabitants of Ecuador, for, the races which have had

their origin there being so varied, there exists a great mixture of diverse tints—the indigenous race, however, predominating. This indigenous American race shows evident signs of degeneration,—small size, weak constitution, sad expression, slow, monotonous speech, simple customs, lack of ambition, frequency of body deformities, such as: dwarfishness, microcephalia, badly formed ears, ogival palate, etc., etc., which might serve as a theme for an interesting anthropological study, but which only make themselves noticed here by the evidently little resistance shown by the race against the more common diseases. Happily, these characteristics are modified after a few generations by mixture and education.

The indigenous race which I have just mentioned lives principally in the inter-Andean region of Ecuador. Now, in this region neither yellow fever nor tropical diseases exist, but these inhabitants of the mountains are the ones that provide the principal laborers and soldiers who come to Guayaquil and are here attacked by the tropical fevers.

PREDOMINATING DISEASES.

Although, as I have said, this region of the Guayas is absolutely tropical,—for at no time of the year does one fail to see the green fields, and while the means of spreading of nearly all tropical diseases are present,—many tropical diseases are not found there, nor even the most fearful of them.

Malaria is a pandemic which reappears every year during the last months of the rainy season, when the Anopheles multiply abundantly in the country and in the cities. Besides, there exist zones which I have mentioned in which it rains throughout the year and in which malaria is never lacking; it is also in those zones where are found the severe forms produced by the plasmodium falciparum, and by the association of the *Plasmodium* falciparum and the *Plasmodium vivax.* It is much more rare to find the *Plasmodium malariae,* agent of the quartan, of which some cases are seen in Guayaquil during the dry season.

The uncinariasis is, with malaria, the most frequent disease of the region; and it is so abundant that it constitutes 60%, more or less, of the contingent of sick of the Hospitals of Guayaquil.

Other intestinal worms are also frequent, as tenias, ascárides, tricocephalus. However, no distomas nor bilharzia are found.

Entamebiasis is very frequent, having many dysenteric manifestations and complications, as hepatic, even pulmonary, and others.

The other protozoa of the intestines, such as the tricomonas, lamblias and balantidiums, are not rare.

The bacillary dysenteries appear in some years, when, for some special reason, such as big harvests or movements of troops, large numbers of people are crowded together under bad conditions in small towns or places.

Bubonic Plague made its appearance in Guayaquil in the year 1908, when there were some hundreds of cases, but has been diminishing gradually until at the present time one can say that it no longer exists,—thanks to the constant campaign which has been carried and continues to be carried on against it.

Typhoid fever, often found in the inter-Andean region, can be said not to exist in Guayaquil, for, though in some years numerous cases of this sickness have been reported, it was due to special conditions the discussion of which would take up a great deal of time,—but it is my impression that the typhoidal infection is no more frequent in Guayaquil than in any other salubrious country.

Other sicknesses peculiar to the tropics of other countries are absolutely unknown in Ecuador. Thus, filariasis, which has been investigated at various times by professional men of the country and by foreigners, has not been found. The same can be said of the leishmanioses, internal as well as external. Yaws and other similar infections have been impossible of demonstration.

Up to the present time no human trypanosomiasis has been reported. However, with respect to Chagas disease, sufficient investigations have not yet been made to positively deny its presence, for there exist in all the region, various species of *Conorrinus* resembling the *magistus,* and even the same triatoma has been shown me by a native entomologist. It would not then be impossible, perhaps, to find this anemia which seems so difficult to find during the life of the patient, for its clinical changes are very similar to uncinariasis and malaria. At all events, if it has been suspected at any time, it has not been publicly announced.

Up to this point I have referred succinctly to the gravest affections of the tropics, for it would be tedious to enumerate the light affections such as cutaneous diseases and the ectoparasites, which,

if not rare, are not more numerous than in any other country in the same latitude.

Of the great pan-human scourges,—tuberculosis and syphilis,—the first has increased in recent years in a manner truly alarming, to the extent of constituting a topic of intense preoccupation on the part of the authorities and of the press of the country. Syphilis, although not very frequent, constitutes no less a menace, for the present sanitary organization has not yet established an efficient prophylaxis against this terrible disease.

I will note, in this brief statement, that smallpox is very rare in Ecuador, and that the exanthematic typhus is almost unknown. This also may be said to be true of scarlet fever and diphtheria.

YELLOW FEVER.

Yellow fever appeared in Ecuador, according to official data, in the year 1842, causing at that time a mortality more or less unbelieveable if one relies upon lay historians. Previous to that time there is no precise description of it, nor even any tradition causing it to be suspected. Perhaps in pre-Colombian times the disease came to this West Coast, but there is nothing to prove it. The historic fact is that on arriving in this city in 1842 it found the entire population non-immune, and thus produced the ravages which remind us of the medieval descriptions, and which have been repeated always whenever this infection has reached a country not immune and rich in *Aedes calopus.*

It is possible that from that time yellow fever may not have completely disappeared from the country, even though many people believe that such has been the case during long periods of time; but this is hard to prove because there have been no statistics whatever until the year 1909, at which time the Public Sanitary Service was created and ordered the isolation of all cases.

SANITARY ORGANIZATION.

The Public Sanitary Service consists of a Director elected by the Congress of the Republic, resident in Guayaquil and subordinate to the Minister of the Interior. This Director has jurisdiction throughout the Republic, and there are or may be Sub-Directors in Quito and in the capitals of the provinces wherever same may be necessary.

The law authorizes the Director to formulate special regulations

against the propagation of epidemic diseases; it gives him authority to inspect dwellings, to close public establishments, and to take extraordinary measures, such as obligatory vaccination. Also, the law orders that the civil and military authorities shall give their aid,—even that of the public forces, if it should be necessary,—to the Sanitary Service.

The regulations issued by the Public Sanitary Service prevail over any municipal provision which may be contrary thereto. The special sections are in charge of Inspectors controlled by the Assistants of the Director's office, or by the Director personally. Until now only two sections have operated regularly in Guayaquil,—that of the yellow fever and that of the bubonic plague.

Unfortunately the revenues upon which the Sanitary Service depends are so small that the service has not yet been able to do thoroughly efficient work in all the branches of its activities; but little by little the official element, and the people as well, are becoming enlightened as to the transcendental importance of this service and giving it their aid to the extent of the means in the public exchequer.

Efforts Toward Sanitation.

In the year 1913 the Government, duly authorized by Congress, requested the Sanitary Service of the Canal Zone to send a commission to study local conditions at Guayaquil and formulate plans to improve them. This commission, presided over by the then Colonel William C. Gorgas, came to this city and presented an important report relative thereto.

After this the Government of Ecuador made a contract with the firm of J. G. White and Company for increasing the supply of potable water, constructing a sewerage system, and providing for the paving of the city. The political changes and, principally, the world war have prevented the execution of this work with the rapidity desired, although the contract continues and work is being done very slowly,—not due to lack of attention, nor to neglect on the part of the Ecuadorean Government, but on account of the scarcity of customs receipts, from which come the funds appropriated for this work.

Action of the Rockefeller Foundation.

On the other hand, in the year 1915 the Rockefeller Foundation, taking into consideration the proposition approved by the Pan-

American Scientific Congress in Washington,—which proposition was made by General Gorgas, and in which the American Governments were urged to eradicate yellow fever from the face of the earth in the same way that man has caused useful and inoffensive animal species to be extinguished; taking into account therefore this desire, the Beneficent Foundation sent a commission composed of General Wm. C. Gorgas, Drs. Guiteras and Carter, Majors Lyster and Whitmore, and Mr. Wrightson, who covered all the zones of the continent where the disease might possibly exist,—the conclusion being reached that its most important source was Guayaquil, although perhaps there existed others of less importance.

In the year 1917 America entered the war, and the sanitary efforts relative to Guayaquil remained in a quiescent state, so that yellow fever increased by some hundreds of cases, due to causes easily explained, as is shown by the following table:

Months.	Years.		
	1917	1918	1919
January	7	2	85
February	8	1	43
March	11	7	17
April	10	9	3
May	14	22	1
June	8	16	0
July	4	9	0
August	2	15	0
September	1	27	0
October	0	41	0
November	2	43	0
December	0	46	0
Total	67	238	149

In the year 1918 General Gorgas sent to Ecuador another commission representing the Yellow Fever Commission of the Rockefeller Foundation. Dr. Charles G. Elliott, of Northwestern University, made a profound clinical study, and the eminent investigator Hideyo Noguchi, of the Rockefeller Institute, carried out an important bacteriological investigation which enabled him to discover an organism whose properties accredit it as the truly pathological cause of yellow fever, and he prepared an immunizing vaccine.

Prophylactic Work Carried On By The Foundation.

At the end of 1918 Dr. Michael E. Connor was sent to Guaya-

quil by General Gorgas as an expert sanitary officer to assist the sanitary authorities of Ecuador in the extirpation of yellow fever along lines decided upon by the Yellow Fever Commission in 1916 as being considered most likely to succeed.

The results of this co-operation are shown by the following data:

Month.	Year 1919. Deaths.
January. .	85
February. .	43
March. .	17
April. .	3
May. .	1

The time is yet too short since the last cases developed to state that the disease has definitely disappeared; but considering the special conditions that have existed in Guayaquil, there could not be a more auspicious outlook.

The city extends along the river bank forming a half moon three kilometers long by one and a half broad. The streets are broad and straight; those in the center of the town are paved,—but in the suburbs the ground is low, and marshy during the rainy season. This does not at first glance appear of great importance in the spread of yellow fever, since the marshes are not suitable for the development of the larvaæ of *Aedes calopus;* but it is a fact that the water is deposited not only in the streets, forming deep puddles, but it is held under the houses, which are of cane or wood. The houses constructed of wood in the greater number of cases have the floor raised from the surface of the ground, furnishing a dark and sheltered space suitable to the life of *Aedes calopus.* The rain water deposited there forms excellent breeding places for these mosquitoes. It is not only in these places the *Aedes calopus* develops, but also, as the water supply for the city is insufficient, the inhabitants are obliged to provide for their needs during the three or four hours when the water is running in the pipe lines, storing it in tanks, barrels and other similar containers,—so that, whether due to ignorance, carelessness or lack of resources, the people do not (or better said, did not) keep these water containers properly covered, and they furnish magnificent and commodious breeding places for the larvæ of *Aedes calopus.*

Another thing favorable to the development of yellow fever is the fact that the houses of the suburbs have walls of bamboo

which have cracks wide enough to permit the passage of the adult *Aedes calopus* from one house to another. Nevertheless it is not in this outer zone that cases of yellow fever are most frequently found, because as a general thing the non-immune subjects, strangers and mountain people live in the central districts,—so that it is in the neighborhood of the cheap hotels, boarding houses, or around the barracks and markets, where the most cases are generally found. It is necessary to know that the greater number of troops are from the highlands, and consequently are not immune to yellow fever. Also, many of the food peddlers are hill people, since it is from the mountain districts that the most of the foodstuffs come. This explains the formation of primitive sources in the vicinity of such places.

The epidemic increase does not, in my opinion, depend so much upon the rains and the greater or lesser atmospheric humidity, but, first, upon the number of infected or infectable Stegomyia existing in the district; second, on the number of non-immune persons living there, and; third, upon the surrounding temperature, as the variations in temperature occur within very limited areas. Thus we have the greatest epidemics not only in the rainy season, when they are, of course, most frequent, but may have them also in the months of June and July, as happened in 1916, and in October and November, as in 1918.

We have seen, too, that as soon as the number of breeding places diminishes (uncovered containers of clear water) the epidemic also diminishes rapidly, even during the rainy months with the city surrounded by marshes, as at the present time (May, 1919).

The problem of the prophylaxis of yellow fever is, therefore, a question of an anti-larval fight,—that is to say, to get rid of all the containers of clear uncovered water. I emphasize this point for the reason that there are those who still believe that yellow fever comes from lack of cleanliness and sanitation in the city. A short time ago, when Dr. Connor took charge of the yellow fever section of the Sanitary Service and began to order the covering of all the tanks, there were those wso said: "What we need is sanitation, as we cannot believe that merely by covering the tanks the yellow fever will disappear." Well, the answer has been one of categorical fact,—that by covering the containers of clean water, and by the fact alone, the disease has diminished

to such extent that it may be considered completely under control before the carrying out of any sanitary work.

A very interesting fact should be noted in this connection which speaks very well for our city and also very highly for the wisdom of our chiefs. It is that in the past campaigns against yellow fever in Cuba, as well as in Panama and even in Brazil, the sanitary methods were backed by show of force on the part of the authorities, who insisted upon compliance with their orders,—while in Gayaquil it has been a work of co-operation in which the inhabitants have given their support, and against which no difficulty has arisen,—but, on the contrary, everything has been applause and approval. An unusual fact is that if there has been any reticence or veiled criticism as to the sanitary work, this criticism has not been made publicly.

From the foregoing is understood the facility and brilliant rapidity with which such good results have been obtained. The plan has been very simple:

1st. The isolation of all suspicious cases behind metallic screening. For this purpose there is an isolation ward in the general hospital, in which are placed patients showing any doubt as to their diagnosis. As soon as the case is considered positive yellow fever it is moved to a special isolation hospital. If not a case, it passes to the medical service to which it belongs.

2nd. The division of the city into districts of such size as to permit a methodical inspection, house to house, within the period of a week. The inspectors take notice of all water containers, in each house, which might serve as breeding places, and of anything else of interest to their work; they then report all these details to their chief so that he may give any necessary orders. A strict control assures the success of this work, as these inspectors are watched over by supervisors, and by the chief personally.

Advance notice was given to the inhabitants so that they might conveniently cover their water containers within the period of fifteen days to the entire satisfaction of the chief of the office. In case the house owner did not so do, the Director ordered it done at the expense of the said owner.

In this manner the coefficient of Aedes has been reduced to a practically inoffensive point, since, the greater number of the inhabitants being immune to yellow fever, the few Aedes which have remained infected have disappeared or should disappear before

reaching a non-immune subject to whom she can transmit the disease.

ETIOLOGY AND CLINICAL.

Etiology. In this paragraph I consider it available to state the very important investigations made by Dr. Hideyo Noguchi, in our small isolation hospital at Guayquil, resulting in the discovery of an organism which can now with assurance be considered the specific cause of yellow fever.

I had the good fortune of being in charge of the yellow fever isolation hospital when Noguchi arrived to complete his investigations.

It might be thought indiscreet to give these details, were it not that they have already been made public, at least his general conclusions, since Noguchi himself published a short article on this subject in the *Journal of the American Medical Association;* for this reason I feel it permissible to tell the congress some of the details of these interesting investigations.

Noguchi arrived at Guayaquil July 15, 1918, having been sent by General Gorgas to carry out some yellow fever research work as a member of a yellow fever commission. On the morning of the 16th he commenced his experimental work, inocculating infected blood from four cases of yellow fever into the peritoneum of several Guinea pigs. These cases of yellow fever were at different stages of the disease; an attempt was made to select only those cases which showed the most characteristic symptoms of yellow fever, for which we took into consideration pyrexis, bradicardia, olguria, albuminuria, icterus, and hemorrhages. If the patient died, I performed personally the autopsy, in the presence of Dr. Noguchi; we demonstrated the typical lesions (hemorrhages, mucosal, intestinal, acute parenchymatous degenerations) so as not to leave any doubt about the accuracy of the diagnosis. Specimens were taken from various organs to study histologically. Each case was most thoroughly worked out.

Noguchi daily injected infected blood from these cases of yellow fever intraperitoneally; both from slightly as well as strongly suspicious cases, injections were made into various laboratory animals, especially Guinea pigs.

On the morning of July 25 an autopsy was performed on Asunción Arias, a robust Indian from Latacunga, seventeen years of age, a typical case of yellow fever with albuminuria, intense

icterus, marked hemorrhages; the stomach contained dark contents, liver showing typical degeneration. I went up to Dr. Noguchi's laboratory, where he showed me what he had on a slide under the microscope. I saw what might be considered spirilla, but under intense ultra light appeared as a rosary of luminous points, extraordinarilly active and flexible. It proved to be Leptospira from the cultivated blood of Asunción Arias.

It is not possible for me to tell the intense emotion produced in me by viewing this self-same organism, because of the extremely careful technique and the competency of Noguchi, the microorganism under view could not be other than the mysterious causal agent of yellow fever.

Many authors, from Marchoux to actual South American workers, had suspected that the cause of yellow fever might be a spirillum, or at least a protozoon similar to tripanosomes or treponemata. The most weighty reason for this belief is negative, that is to say that previous bacteriological investigations had always failed; consequently it is almost sure that it is not a bacterium but a protozoon. Noguchi thinks it is an intermediate type, because it has some of the bacteriological properties of bacteria, being at the same time, for other reasons, near to protozoa. I later saw this culture transplanted into other media, principally in isotonic solutions of animal serum (sheep and mules), and grow in some of these culture tubes; some were sterile, because its culturing does not seem so easy as for other similar organisms.

I afterwards saw this culture injected into the peritoneum of other Guinea pigs, and saw reproduced lesions absolutely similar to those of yellow fever. The Guinea pigs had marked epistaxis, intense icterus which stained a yellow color all tissues, stomach contained black fluid (coffee grounds) and fatty degeneration of the liver, sometimes also of the kidneys, and finally chiefly, pulmonary hemorrhages, which are very constant in inoculated Guinea pigs. To such a degree were these lesions that many times after performing a human autopsy, it was possible to compare immediately the specimen of human organs with those obtained from Guinea pigs, which appeared microscopically identical.

It was not only in the inoculated Guinea pigs that the lesion appeared characteristic, but also in other animals, as dogs and monkeys, especially brought from Panama by Dr. Noguchi, since the indigenous monkeys showed a resistance.

The transmission to Guinea pigs was made in several ways. By way of the digestive tract it appeared that it was innocuous. Several times I have seen ingested fresh viscera of sick Guinea pigs by well ones without their showing any appreciable changes. On the other hand, subcutaneous inoculations were always positive; after two or three days, in general, the Guinea pigs had fever ending fatally with typical lesions of yellow fever. This I have seen realized in various series, finding after each step the same organism and the same lesions, which appeared to me absolutely confirmatory.

I saw also its transmission from man to animal, and from animal to animal, by means of the mosquito, *Aedes calopus*. Those recently sick in the second or third day of the disease introduced one hand uncovered to the elbow into the interior of special cages containing large quantities of female *Aedes calopus*. These, after having been infected, were guarded for fourteen days; at the end of this time a Guinea pig was introduced into the cage with the abdomen shaved and the feet tied. Not entirely satisfied, the thorough and untiring Noguchi wished to see the development of the disease in the animals day by day, taking not only the thermal curve, but also making daily examinations of the blood and chemical and microscopical examinations of the urine. He was also able to observe that the albuminuria presented similar variations as observed in man, and also the presence of cylandruria more or less abundant. Now, some of these inoculated Guinea pigs, after showing evident signs of yellow fever, became normal, spontaneously cured. If then (at this time) they were now inoculated either with a culture or with an emulsion of viscera, the result was negative. The Guinea pigs were immune to the yellow fever infection.

Among many other experiments to prove the specificity of the discovered organisms can be cited the phenomena of bacteriolysis of Pfeifer, and the passing of these organisms through a Birkfeldt filter (*v. y. n.*) proving the infection of healthy Guinea pigs with the filtrate, and finding the organisms in the animals thus inoculated, thus completing the chain. By these means it seems to me that a new road for investigations is now open; the organism found by Noguchi, because of these cited proofs, appears to me as the pathological cause of the disease.

Two great problems are immediately suggested, diagnosis and treatment; on both of which problems Noguchi now finds himself

working. For a diagnosis it would be necessary to discover a technique capable of demonstrating the organism under a direct and immediate examination, and, relative to the treatment, perhaps it will not be difficult to find a curative serum, since the organism, when inoculated in animals, will grow.

Clinical.

There is nothing important or new which I can add to the clinical description of yellow fever, although I have watched this disease for ten years, during which time there have passed under my observation nearly fifteen hundred cases. The complete classical picture described by authors has been seen, but if there is something worthy of being noted, it is a very great frequency of grave cases, which might be explained because I have worked in an isolation hospital where only suspicious cases are sent, which are, at least, of medium severity,—nine cases have remained doubtful, or complete data have not been obtainable.

Rarely has it been possible for me to see the beginning of a case of yellow fever. In the few cases this has happened— a nurse of the same isolation hospital, or persons from private practice—I have noticed nothing more than a sharp attack, more or less violent, of an acute infection; chill, prostration, headache, bone-ache, pain in the limbs, principally in the legs, more rarely vomiting and epigastric tenderness. At times the commencement is not so intense, so that the patient does not suffer much and can bear the pain for a few hours, even continue at his occupation for a day or two; but as a rule the individual does not resist, and promptly seeks his bed and medical assistance.

The chill is usually single, not very severe, and in some cases absent. The headache is of all signs, at the beginning, the most worthy of consideration, because it is rarely lacking even in cases relatively benign.

It is very important to note the exact date of the beginning of the disease, because the diagnosis may largely depend on the day of development of a suspected case. But this is in some cases very difficult, since the individual may have suffered from an attack of malaria in the period of inoculation of yellow fever, which, moreover, is not a rare event—since malaria prevails in every month of the year. Doubts immediately arise when we see subjects

who, according to our data, are met on the seventh or eighth day, and are found with high temperature, but without albuminuria, which ordinarily does not correspond to yellow fever. At other times the invasion is benign, and the individual is slightly indisposed only on the second or third day, but this is very rare.

General Symptoms And Their Evolution.

In practice it is the rule to begin the observation of cases of yellow fever about the second or third day. Then we find the picture of the second period. This is an acute infectious stage, without any special characteristics, but symptoms common to all generalized infections. It is what authors describe as the congestive period—face red, swollen, the mucosa hyperæmic, gums tumefied, vaso-motor changes of the skin, agitation moderate, high fever, pulse at all times rapid and with hypertension, urine normal without albumin, and nothing of note in organs or the body as a whole.

This stage changes on the third, fourth or fifth day, when the temperature descends a little, the pulse, however, much more so, prostration is accentuated, icterus appears in the conjunctivæ and there appears a small quantity of albumin in the urine, with a few cylindroids in the sediment, and vomiting appears; also pain in the epigastric region, and hemorrhages occur, which are combined with icterus and albuminuria, the three signs which dominate the picture of the third period.

Also belonging to this period, which lasts from the fourth to the eighth day, the nervous phenomena, toxic in character, such as agitation, delirium more or less violent, convulsions, coma, accompanied generally by meningetic cry, and finally Cheyne-Stokes respiration.

As a general rule the symptoms go on developing by degrees, the temperature descends, while icterus is accentuated, and albuminuria increases to such a point that it reaches a maximum when the patient is apyretic. The same thing takes place with the bradycardia, which persists several days into convalescence.

The duration of yellow fever is stated as seven or eight days, and the end is verified in favorable cases by lysis approximately regular; but, in grave cases, it is possible to see on the seventh or eighth day an abrupt fall in temperature, a critical stage, accompanied by profuse sweating, chilliness, collapse, which generally ends in death.

Special Symptoms.

Temperature. As has been said before, a chill initiates the fever, but this single chill is not so intense as it is common, for many times the patient will not refer to it spontaneously, but the fact has to be brought out by investigation.

The initial temperature is always the highest at the beginning of the disease, but it reaches rarely the limits of hyperpyrexia; usually it is from 39 to 39.5 degrees C.—seldom passing 40 degrees C. An observation has been noted by former clinicians that a high initial temperature in yellow fever portends always a severe prognosis in the development of the disease: This observation we have confirmed frequently in our observation hospital, and we are able to add that this is more accentuated in those cases in which the temperature does not remit after the second day, but remains elevated.

As a general rule there is a morning remission each day more pronounced, the variation of the temperature curve is more extensive each time until the temperature becomes normal. Sometimes the remission is very marked in the fifth or sixth day, in which some authors believe they see something characteristic of the disease, and which they believe diagnostic. For my part, the number of cases in which this phenomena has been clearly seen is so small in number that I do not consider it of very great value in making a diagnosis. As a general rule pyrexia in this disease is the phenomenon most important, and the observation of the graphic curve is useful, about comparable with that of the pulse.

Pulse, Heart, Arterial Tension.

In the first and second periods,—that is to say, up to the third or fourth day, the pulse is rapid and strong, the tachycardia keeps pace with the temperature—but slowly begins to separate from it—so that as the pulse begins to fall slowly we are able to see in some cases clearly the Faget phenomenon—which in our opinion, is very characteristic—that is, as the pulse falls the temperature ascends. Very rarely, there is a relative bradycardia which we believe only to be of real diagnostic importance when the pulse continues to fall. Sometimes this may be disguised by associated infections (malaria, suppurative conditions) in which cases there is a tachycardia in the course of the disease.

In children of twelve years of age there is only a relative bradycardia, because at this age, the pulse is normally more rapid than in the adult. Nevertheless, if we take into account this increase, it is not difficult to see that the bradycardia corresponds.

In very grave cases the pulse rapidly descends, and when its graphic curve has reached a point above that of the temperature it is possible, then, to pronounce a fatal prognosis; because it means that there has been a severe hemorrhage or an acute fibrillar degeneration of the myocardia. In these cases internists say that the disease writes its own cross.

Relative to the heart, some clinicians have believed that they have found a systolic bruit in the center of the præcordial region. This bruit, which is in some cases perceptible, does not appear to me as anything characteristic, because the same sound can be heard in nearly all cases of severe pyrexias.

The arterial tension is naturally elevated the first day of the disease. As happens in all acute infections, the tension diminishes progressively until it becomes normal in convalescents. In grave cases there is an abrupt fall, which announces fatal ending.

RESPIRATION.

As a general rule nothing abnormal is noticed in the respiratory apparatus. However, in some cases there are evident signs of active congestion, which are revealed by means of a stethoscopic examination—of blood-stained sputa. I have seen a case of this character which ended fatally, abruptly.

ICTERUS.

Special conditions of climate and race make this sign of much less value, which is, however, very constant in yellow fever. An exaggerated hepatic function is the rule in warm climates—a great number of people have a slight icteric tint in their conjunctiva, in a state of apparent health. It is possible to add that the frequency of malaria produces constantly hepatic hyperæmia; in a similar way greater number of febril conditions produce an icterus more or less apparent. On the other hand, the brown color of the skin of our indigenous race, does not permit us to clearly distinguish the icteric tint in them. After all, it is usually possible to prove an icterus, which should increase from the third day on. This, in my judgment, should be present to have weight in a discussion of the diagnosis.

In one third of the cases the icterus is pronounced; it is intense, produces strong color of sulphur—in skin and mucosæ. There is present at the same time, bile in the urine, to which some attribute an importance which does not appear to me justified.

Hemorrhages.

The hemorrhagic phenomena are generally late,—however, in the past year it has been possible to demonstrate cases of black vomit on the third day of the disease, especially in children.

In the order of frequency of the organs which have a tendency to bleed, we should place first the gums, second the nasal mucosæ, and third the stomach; so that with variable frequency all the other mucosal surfaces bleed, from the conjunctivæ to the vesiculo-urethral. But it is not only in mucous membrane that we see hemorrhages, but we find them also in the connective tissue, and parenchyma of various organs, as well as in the skin itself, which is, in reality, a true purpura. In regard to the quantity, it is undoubtedly the mucous membrane of the stomach where the greatest bleeding takes place, although sometimes we see a very intense epistaxis and other severe hemorrhages.

I have an impression that when a mucous membrane has been previously changed by some lesion, that a hemorrhage takes place with greater ease than before. Thus I have seen two rectal hemorrhages in subjects who have suffered from amoebic dysentery, or who were suffering from a chronic amebiasis at the moment they were attacked by yellow fever. This also happens with women who have an endometritis.

The Digestive Apparatus.

One of the most characteristic phenomena of this disease is the appearance of the gums during the first two days—congestive stage. They are intensely red and tumefied, while, when we reach the hemorrhagic period, they bleed with great frequency—their margins spread over the alveolar borders, and blood stains the teeth. This hemorrhage to some degree is accompanied by marked salivation, which stains the clothing while the sick person sleeps.

The tongue has a dirty appearance, without taking on the typhoid characteristics. In grave cases it is dry and cracked because of the marked dehydration.

The epigastric region is moderately painful in the early days,—

becomes, in two thirds of the cases,—very sensitive about the fourth or fifth day of the disease. This sensitiveness, which is at times exquisite, is accompanied by a sensation of anguish and active thirst, more pronounced if there is vomiting. The vomitus is at the beginning glairy and bile-stained, until there appear the well-known black particles (fly specks), which indicates that there is a superficial hemorrhage in the stomach. When the condition is more intense, the vomitus becomes completely black, and the dejections are also of the same color.

In some cases there is no epigastric tenderness, but the umbilical region, or indeed the whole abdomen, appears equally sensitive. In certain cases the hypogastric region, and the iliac fossæ are very sensitive to pressure, which is more often observed in women. This appears to me related to the hyperæmia of the internal genital organs. The liver and the spleen are seldom found congested, unless due to some other disease.

URINARY APPARATUS.

The first phenomenon worthy of being noted in an oliguria, which becomes apparent before the appearance of albumin in an appreciable quantity. If you watch the curve of the quantity of urine in twenty-four hours, you are able to see that it slowly increases as the temperature descends, which appears to indicate a prognosis in some way favorable, but in other cases the quantity grows less, and may cease completely for twenty-four hours, which is truly an anuria, a warning of the nearness of uremia.

Albuminuria is noticeable sometimes even on the second day, or more often on the third day, made evident by heating the urine. At first only a small quantity, it continues to increase progressively, from the second or third day, into defervesence, and then decreases slowly. The quantity of albumin per liter reaches a very high proportion, but not for some time. This is a characteristic of albuminuria in yellow fever; it increases and decreases independently of the temperature, while in other pyrexias, (malaria and typhoid) the albuminuria follows the level of the temperature curve, and declines with it. If you observe the graphic curve, you are able to see the albuminuria cross, in general, the temperature curve, at the moment when there is a final descent.

The albuminuria is always accompanied by cylindroids and other

renal elements in the sediment, which is not at all characteristic, since the same thing is observed in other severe infections.

Blood.

The examination of the blood is useful in yellow fever, because it furnishes important data for the diagnosis of this disease. First of all, the presence of parasites of malaria produces, in many cases, a doubtful diagnosis, but should, without doubt, be held under consideration, since the two infections are able to be associated, or, better expressed, a subject attacked formerly by malaria, is able to contract yellow fever. The red blood corpuscles do not suffer much alteration. They appear to be slightly increased. On the other hand, leucocytes are with great frequency diminished in number, (leucopenia) and present usually degenerative signs and artifacts, which appears to show that the diagnostic sign of Arneth is entirely lacking (the same appearance as in typhoid fever or kala-azar). The presence of degenerative forms makes one feel for a moment, in some way, that it was typical of this infection, but after a short time this belief was corrected.

After all, the blood characteristics, added to the other noted signs, appear to be most useful.

Nervous System.

It is interesting to observe the state of excitation in the first few days—loquaciousness—agitation—insomnia—constant headache,—because these signs are related to encephalic ischemia, becoming slowly hyperemic, and the nervous phenomena of the toxic period become very severe.

It seems, on the other hand, that the nervously excitable personality and the terror of a fatal ending of the disease contribute greatly to change the intellectual state of a patient. After the fifth to the seventh day of the disease, these nervous phenomena appear, which, after all, are of the uremic stage. They consist of a delirium more or less violent, with convulsions more or less frequent, to coma, from which the patient rarely awakens.

Conclusions.

Hasty and incomplete as these conclusions may be, I consider it useful to make these early clinical statements becaure of the importance they will have toward reaching a diagnosis of the disease.

The lack of time, on the one hand, and the fact that I shall

not be able to tell anything new, on the other, prevent me from taking up your time describing the pathological anatomy and treatment, which I believe have not varied much in the past ten years.

I wish to give you a resumé of my ideas formerly expressed, as follows:

1st. Guayaquil appears to be the only important focus of yellow fever on the surface of the globe.

2nd. The Ecuadorean people and government have made up their minds to eliminate this disease.

3rd. The Rockefeller Foundation, by means of a special Yellow Fever Commission, of which the illustrious General W. C. Gorgas is president, has lent and continues to lend its co-operation to the sanitary authorities of Ecuador. This co-operation which deserves the gratitude of the Ecuadorean people, appears at the present time to be giving excellent results.

4th. Dr. Hideyo Noguchi has discovered an organism which, judging from experimental results, is undoubtedly the specific cause of yellow fever.

5th. The diagnosis of yellow fever is not able to be established from a single sign, but by the detailed study of combined symptoms which are present.

(I) THE AFTER-HISTORY OF TRYPANOSOMIASIS IN AFRICA.

(II) CONCERNING IMMUNITY TO HUMAN TRYPANOSOMIASIS.

By JOHN L. TODD, McGill University, Montreal, Canada.

I.

In 1911,[1] 12,298 natives were examined in the territory of the Gambia. By the methods employed, 79 of these persons were found infected with trypanosomes and 21 others had superficial lymphatic glands so enlarged that an examination would have revealed trypanosomes in them also[1]. It was already known [2], [3], [4], [5], from observations made on both Africans and Europeans, that while the majority of apparently healthy persons in whom trypanosomes were found would die within thirty of forty months, some might live for longer periods—one European who had been

treated, and apparently cured, died of trypanosomiasis in the eighth year after he became infected[e].

It was hoped, by continued observation of the natives examined in the Gambia in 1911, to obtain accurate records of the progress of the disease and to learn what proportion of those with enlarged glands in whom no trypanosomes had been found might eventually show signs of a trypanosome infection.

The Protectorate of the Gambia is inhabited by an orderly, prosperous, fairly stable, pastoral and agricultural native population. It was largely because these conditions make it possible to keep track of individual natives that the examinations were made in 1911. Elsewhere in Africa, as in the Congo Free State, it is almost impossible to follow an individual over a long term of years.

The Gambia is divided into a number of provinces. Each province is administered by a Travelling Commissioner. Each Travelling Commissioner goes yearly through his province and has an excellent opportunity for seeing or hearing of the condition of individual natives. The possibilities of error in records so obtained, through mistakes in identity or through errors of diagnosis, are evident.

Mistakes in identity can be avoided by no one so well as by a Travelling Commissioner. He knows many of the natives and he is known by all of them. The possibility of mistakes in identity was reduced by recording the age and sex as well as the names of individuals, and also by making reference to any special means of identification, such as a goitre, or the loss of an eye. When it is desired to keep track of native children, the names of parents should always be given.

Mistakes in diagnosis are unavoidable in records which depend upon the evidence of natives or of Europeans who are not physicians. Nevertheless, natives, and Europeans who live in an area where human traypanosomiasis occurs, are familiar with the clinical evidences of the disease and they are rarely wrong when they say that someone has it or has died of it.

When a Travelling Commissioner is in his Province he is much occupied by administrative duties. It is, therefore greatly to their credit that some of the Commissioners have kept records of the cases existing in 1911 in their Provinces. Travelling Commissioner E. Hopkinson, M. D., D. S. O., especially has been able to follow, year by year, each one of his cases. This communication

is almost entirely based upon the observations made by him. It is regrettable that the records from other Commissioners are far less complete than they might have been.

Lists of 350 natives who had been carefully examined were left, in 1911, with Commissioners; these had been chosen for examination on account of their enlarged glands; 79 of these natives were cases of trypanosomiasis. In the South Bank Province (Travelling Commissioner Hopkinson) there were 12 cases of trypanosomiasis in a list of 33 persons who had been carefully examined. They were selected because of enlarged cervical glands from 720 natives taken at random. At the end of 1918, 4 of Hopkinson's 12 cases of trypanosomiasis were still living. The remainder had died at irregular intervals during the period elapsing since 1911. About one-third of the cases occurring in the remaining Provinces were lost sight of, 25 of them had died and, when last reported on in 1916, three were living.

The cause of death was practically always said to be "sleeping sickness". The cases still living are said to be perfectly well and those who have seen them suggest that they are "cured".

Records have been kept of so few of the natives with slightly enlarged glands and in whom no trypanosomes were found that nothing can be said concerning the possibility of undetected trypanosomiasis having been present in them in 1911. Several of them have died. In no case was death reported to have been due to trypanosomiasis.

It is very much to be hoped that it will be possible for the Commissioners to continue their observations on these cases. The opportunity afforded by them of obtaining accurate information concerning the duration and course of trypanosomiasis in native Africa is unique.

CONCLUSION.

Four natives, living in the Protectorate of the Gambia, found to be infected with trypanosomes at the beginning of 1911, were in good health at the end of 1918.

II.

There is no history, or tradition, of a time when tryanosomiasis was not endemic and universal in the Gambia. In 1911, about 0.8 per cent of the population was shown to be infected with

trypanosomes; tsetse flies, *Glossina palpalis* and *G. morsitans* are widely distributed and are often very numerous[1].

The Gambian natives' manner of living does not particularly expose them to bites by *Glossina palpalis;* their villages, grazing grounds and farms are usually at some distance from the water. The natives are prosperous; they have not been weakened by the miseries of famine or war and are the better able to resist disease. The method of examination employed in searching for cases of trypanosomiasis is known to be fallacious and cases doubtless were missed[1]. None-the-less it has long been felt that these factors are not sufficient to explain why only 0.8 per cent of the population were found to be infected with trypanosomes in a well-peopled area where trypanosomiasis has been endemic for many years and where tsetse flies are numerous.

A variation in the virulence, or in the species of the trypanosome might account for the low infection rate; but the trypanosome from the Gambia has not been shown to differ from the T. *gambiense* which causes epidemics in East and Central Africa[9]; and typical cases of "sleeping sickness" of the severest type do occur.

If the Gambian natives possessed a partial immunity their rate of infection would be low. It was maintained[7] that the small percentage of trypanosomiasis[1] in the Gambia among natives who are elderly (over 40-45 years) supported such a suggestion.

That view was opposed[8] by maintaining that cases of trypanosomiasis are found amongst groups of persons in direct proportion to their exposure, by reason of their occupation or residence, to the bites of infective tsetse flies. It was rightly pointed out that, in the Gambia as elsewhere, those who have passed middle age are exposed by their occupation much less than are other natives to tsetse bites.

Nevertheless, a native in the Gambia can scarcely live to become elderly without having been bitten, many times, by tsetse flies which have previously bitten persons infected with *T. gambiense.* That there are elderly natives, suggests that to reach their age they must, during their lives, have resisted a trypanosome infection; on this ground alone it was suggested that an immunity to human trypanosomiasis does exist[10].

It is submitted that this view is supported by the health at the end of 1918 of four natives who, in 1911, were shown to be infected with trypanosomes. If they continue to live without signs

of ill-health, and immunity—spontaneous cure—will be accepted as existing; if they develop clinical trypanosomiasis, either from a new infection or from the old one, their history will show that the disease ran a course so chronic as to justify the statement that these four cases showed a partial immunity to the disease.

It has also been maintained[11] that if an immunity existed it was not a sterilising immunity but rather a tolerant immunity which permitted the existence in the human host of limited and undangerous trypanosome infections, either continued or renewed. It is submitted that the continued existence of health of Travelling Commissioner Hopkinson's four cases is not discordant with such a view.

Proof of the existence and nature of any immunity to trypanosome infections possessed by natives can only be obtained by the observation and repeated examination of known cases, over long periods of time. It is hoped that the records of these Gambian cases may continue uninterruptedly.

CONCLUSION.

The existence in an endemic area of four cases of trypanosomasis, seven years after their infection was demonstrated, is additional proof that some degree of immunity to human trypanosomiasis does exist.

BIBLIOGRAPHY.

1. Todd and Wolbach. "The Diagnosis and Distribution of Human Trypanosomiasis in the Colony and Protectorate of the Gambia." *Annals of Tropical Medicine and Parasitology*, Vol. V, April 20, 1911, to February 26, 1912, pp. 245-286.
2. Todd. "'The Later History of Cases of 'Sleeping Sickness.'" *Montreal Medical Journal*, Vol. XXXVII, July, 1908, p. 511.
3. Todd. "Review of the Position of Gland Palpation in the Diagnosis of Human Trypanosomiasis." *The Journal of Tropical Medicine and Hygiene*, No. 15, Vol. XI, August 1, 1908, pp. 229-233.
4. Martin and Darre. "Documents sur la trypanosomiase humaine." *Bulletin de la Société de Pathologie Exotique*, Vol. VII, 1914, pp. 711-715.
5. Heckenroth. "Tournée médicale effectuée sur le Congo et l'Oubangui." *Annales d'Hygiène et Médecine Coloniales*, 1913, Vol. 16, No. 1, pp. 104-144.
6. Martin and Darre. "*Résultats éloignés du traitement dans la trypanosomiase humaine.*" *Bulletin Sleeping-Sickness Bureau*, London, Vol. II, 1910, p. 212.
7. Todd. "Concerning the Sex and Age of Africans Suffering from Trypanosomiasis." *Annals of Tropical Medicine and Parasitology*, Vol. VII, No. 2, June, 1913. pp. 309-319.
8. Ingram. "Concerning Age, Sex and Race in the Incidence of Human Trypanosomiasis." Report of the Accra Laboratory for the Year 1915, pp. 36-44.
9. Thomas and Linton. "A Comparison of the Animal Reactions of the Trypanosomes of Uganda and Congo Free State Sleeping-Sickness with Those of *Trypanosoma Gambiense* (Dutton)." The *Lancet*, May 14, 1904, pp. 1337-1340.
10. Dutton and Todd. "First Report of the Trypanosomiasis Expedition to Senegambia (1902). Liverpool School of Tropical Medicine. Memoir XI.
11. Todd and Adami. "Concerning the Immunities of Tolerance." *The Canadian Medical Association Journal*, Vol. 4, February, 1914, pp. 103-107.

NEWS AND COMMENT

AMERICAN ASSOCIATION OF ELECTROTHERAPEUTICS AND RADIOLOGY.—The twenty-ninth annual meeting of this society was held September 16-19 in Philadelphia, under the presidency of Dr. Wm. L. Clark, of Philadelphia. A very interesting program was furnished by prominent men in these specialties. Various sessions were devoted to symposia on induced catabolism, metabolism, the cardiovascular system, x-ray in orthopedics, reconstruction following war injuries, and physiotherapy.

IRISH MEDICAL ASSOCIATION.—Dr. J. Marshall Day has been elected president and Dr. E. Magennis vice-president of the Irish Medical Association, the membership of which now exceeds seven-hundred.

SOUTHERN MEDICAL ASSOCIATION MEETING.—The annual meeting of the Southern Medical Association will be held at Asheville, N. C., November 12 and 13, with headquarters at the local Y. M. C. A.

ANTI-MALARIA CONFERENCE.—The American Anti-Malaria Association held a conference at Florence, Ala., on October 15, having as its object the launching of a campaign to eradicate malaria from the United States. Senator O. W. Underwood was chairman of the conference.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.—At the meeting of the Louisiana State Board of Medical Examiners held in July, sixty-seven out of seventy-one physicians successfully passed the State examination.

OBSTETRICIANS AND GYNECOLOGISTS ELECT OFFICERS.—At the thirty-second annual meeting of the American Association of Obstetricians and Gynecologists, held in Cincinnati September 15-17, under the presidency of Dr. John F. Erdmann, New York, the following officers were elected: President, Dr. Geo. W. Crile, Cleveland; Vice-President, Drs. Palmer Finley, Omaha, and David Hadden, Oakland, Calif.; Secretary, Dr. E. Gustav Zinke, Cincinnati, (re-elected) and Treasurer, Dr. Herman E. Hayd, Buffalo. The next meeting will probably be held in Atlantic City, N. J., September 13-15, 1920.

Cootie Exterminator.—According to a recent report, French scientific men have discovered an asphyxiating gas which not only destroys the body louse, but which also acts with soothing effect on the body of the tormented soldier. The discoverers of the gas are Professors Bertrand, Broca, Rousseau and D'Arsonville, who presented it before the French Academy of Sciences on September 1. The asphyxiant is pulverized chloropicrine and it will be employed extensively by the French army in camps and cantonments and will also be distributed among its colonial troops.

Expected Influenza Return.—Surgeon-General Blue, of the Public Health Service, in an official bulletin under date of September 13, discusses the question "will the 'flu' come back this year?" He believes it will appear, though not in as severe a form as last winter. He suggests that city officials, state and city boards of health should be prepared in the event of a recurrence, and that now is the time to make preparations. Concerning immunity, he states that the evidence is not conclusive, but there is reason to believe that an attack during the earlier stages of the epidemic confers considerable though not absolute immunity in the later outbreaks.

National Tuberculosis Association Submits Report.—The annual death rate from tuberculosis in the United States is more than 150,000 and there are more than 1,000,000 active cases of the disease in the nation, according to the report of the Executive Committee of the National Tuberculosis Association, which met on September 13, at the Russell Sage Foundation in New York City. In order to combat and prevent the spread of the disease a national campaign is necessary, funds for which will be sought by a ten-day sale of Red Cross seals, beginning December 1. The total of the several state budgets will be more than $6,500,000. An additional campaign has been planned for the coming year which is to be extended to every part of the country, to impress upon the people the fact that tuberculosis is preventable and curable, and special efforts will be made in this campaign to the searching out of unsuspected cases.

Child Hygiene Association Meeting.—The annual meeting of the American Child Hygiene Association, formerly known as the American Association for the Study and Prevention of Infant

Mortality, will be held at Asheville, N. C., November 11-13, under the presidency of Dr. S. Josephine Baker, N. Y.

MILLIONS FOR MEDICAL EDUCATION.—The General Education Board has been given $20,000,000 by John D. Rockefeller, to be used in improving medical education in the United States, according to recent newspaper reports. The announcement states that the income and the entire principal are to be distributed within fifty years and that a preliminary survey of the medical schools will be made to determine which are worthy of being improved.

MALARIA IN CUBA.—It is stated by expert authorities that the death rate from malaria in Cuba has dropped since 1898 from 25 per 10,000 to 1.8 in recent years. Malaria occupied the first place in the list of causes of death when the Americans took charge of Cuba, while now it occupies the sixteenth place. In the last two years, however, the mortality has been 2.7 and 2.4 per 10,000, respectively.

SUGGESTION TO SHORTEN PREMEDICAL COURSE.—At the final session of the Pennsylvania State Homeopathic Medical Society, held in Philadelphia, September 20, the members of that body passed a resolution appealing to the National Federation of State Medical Boards to shorten the premedical course so that the degree of M. D. might be obtained after six years' study instead of seven.

CHILD WELFARE ASSOCIATION PLANS YEAR'S WORK.—At the fall meeting of the Child Welfare Association of New Orleans on October 4, extensive plans were made looking to the needs of the 15,000 babies of the city through its thirty-two clinics and its special staff of physicians and nurses. A maternity service has been established with Dr. C. Jeff Miller as director; Drs. P. J. Carter, L. E. King and R. Blakely as staff physicians, and the Misses Celeste Janvier and C. Judis as nurses. This is accounted the most important development of the association's work. Mothers have been invited to register for the service at any Child Welfare station between the hours of 1 and 2 p. m.

THE UNITED STATES CIVIL SERVICE COMMISSION announces open competitive examinations for the positions of Chief of Division for Scientific Research, $3,500-$4,500; Chief of Division for Educational Research and Development, $3,500-$4,500; Educational Assistant, $2,800-$3,600; Chief of Division of Relations with

States, $3,500-$4,500; Chief of Division of Records, Information and Planning, $3,500-$4,500; Supervising Assistant and Inspector, $2,800-$3,600; Field Agent, $1,800-$3,000. These positions are to fill vacancies in the Interdepartmental Social Hygiene Board for duty in Washington, D. C., and in the field. The examinations are to be held in the important cities throughout the United States on November 4, 1919, and are open to male and female.

National Dental Association Meeting.—The meeting of the National Dental Association was held in New Orleans, October 20-24. Free dental operations by the leading dental surgeons of the country were available to the poor of the city during the convention. The work was done for the instruction of the visiting dentists during clinics.

Medical Periodicals Delayed by Strike.—On account of the strike of certain organizations of printers and employees, which had tied up completely the offices in which they were employed, the medical periodicals published in New York City did not appear for the week of October 4. It is estimated that 152 weekly periodicals published in New York City failed to appear during that week.

Clinical Congress Meeting.—The ninth annual meeting of the Clinical Congress of the American College of Surgeons was held in New York City, October 20-24, under the presidency of Dr. William J. Mayo, of Rochester, Minn. The program included many valuable papers on surgical subjects and proved of great interest to those in attendance.

The American Radiological Association.—The organization of this meeting was recently perfected, with the election of the following officers: president, Dr. Albert Soiland, Los Angeles, Cal.; first and second vice-presidents, Dr. D. Quigley, Omaha, Nebraska, and Dr. E. A. Merritt, Washington, D. C.; secretary, Dr. Bundy Allen, Iowa City, Iowa; treasurer, Dr. Alden Williams, Grand Rapids, Michigan. The Executive Committee is composed of the following: Dr. O. H. McCandless, Kansas City, Mo., Dr. A. F. Tyler, Omaha, Nebraska, and Dr. Amedee Granger, New Orleans. Dr. B. H. Orndoff, of Chicago, was chosen chairman of the Board of Councilors; Dr. E. H. Skinner, of Kansas City,

chairman of the Organization Committee; Dr. Russell H. Boggs, of Pittsburgh, chairman of the Program Committee, and Dr. E. C. Samuel, of New Orleans, chairman of the 1920 New Orleans Meeting. The association plans to have a meeting in New Orleans about two days prior to the meeting of the American Medical Association.

Dr. Urban Maes, Professor of Surgery in the Tulane School of Medicine, was elected a member of the Society of Clinical Surgery at the meeting of this body, held at Rochester, October 10, 1919.

Among the doctors of New Orleans who have returned home from their vacation and resumed practice since our last issue are: Drs. W. H. Block, C. J. Bloom, H. Daspit, J. D. Bloom, J. A. Estopinal, P. I. McIlhenny, A. Caire, G. S. Bel, W. E. Levy, H. P. Jones, J. Hume, W. H. Harris, J. J. Ryan, M. S. Meyer, A. G. Friedrichs, E. P. Lowe, C. G. Cole and A. Granger.

Among the Louisiana physicians who have returned from service since our last list are the following: Drs. F. A. Howell, W. R. Metz, Ralph Hopkins, M. S. Meyer, H. J. Dauterive.

Removals.—Drs. Valentine F. Fuchs and W. T. Patton, from 1109 Maison Blanche Bldg., to 410 Medical Bldg.

Dr. S. K. Simon, from 1105 Maison Blanche Bldg., to 3439 St. Charles Ave.

Dr. J. T. O'Ferrall, from Cusachs Bldg., to 3439 St. Charles Ave.

Drs. R. E. Stone, J. W. A. Smith, P. J. Kahle and A. Mattes, from 701 Title Guarantee Bldg., to St. Charles and Common Sts.

Dr. Allan Eustis, from Cusachs Bldg., to 3621 Prytania St.

Dr. J. D. Martin, from 410 Medical Bldg., to 3601 Prytania St.

Dr. S. F. Braud, from 410 Medical Bldg., to 4th Floor, Cusachs Bldg.

Drs. I. I. Lemann and Randolph Lyons, from Maison Blanche Bldg., to 3521 Prytania St.

Dr. Arthur Weber, from 710 to 1226 Maison Blanche Bldg.

Dr. M. H. McGuire, to his residence, 1114 Webster St.

Dr. J. R. Hume, from 312 Macheca Bldg., to 1024 Maison Blanche Bldg.

Dr. P. T. Talbot, from 710 to 620 Maison Blanche Bldg.

Dr. S. R. Humphries, from 420 to 408 Macheca Bldg.

Dr. K. F. Meyer, to 2nd and Parnassus Ave., San Francisco, Cal.

The Kentucky Medical Journal, from Bowling Green to 532 W. Main St., Louisville, Ky.

Medical Herald, from 713 Lathrop Bldg., to 536 Ridge Bldg., Kansas City, Mo.

New Orleans Polyclinic Research Laboratory, from Municipal Bldg., to 504 Macheca Bldg.

MARRIED.—Dr. Ross R. May, Whitewright, Texas, to Miss Pauline Lenox, Pendleton, Ark.

DIED.—On October 7, 1919, Dr. John Louis Deslattes, a native of Louisiana, aged 70 years.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL *will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the* JOURNAL *to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

A Practical Treatise on the Therapy of Surgical diseases for the use of Practitioners and Students of Surgery, by James Peter Warbosse, M. D. In three volumes of 2600 pages with 2400 illustrations. W. B. Saunders & Co., Philadelphia, Pa.

This System of surgery written entirely by the author and dedicated to those 'who suffer from surgical diseases and injury' is a monumental contribution to the profession and reflects a brilliant tribute to its author for his skill, ability and originality as a surgeon, teacher and writer. It is not a work written exclusively for the surgeon but gives a full discussion of the medical and non-operative treatment of all surgical conditions where such treatments exist, and in this feature appeals both to the medical practitioner as well as the surgeon. The best surgical procedure and technique is amply illustrated and along with this are given many substitute or alternative plans of treatment and emergency procedures which will prove of great aid and service to those lacking the skill and training of the experienced surgeon and in surroundings where the best methods cannot be applied. In this feature the writer is constantly appealing to the resourcefulness and originality of the reader. In many ways the work stands out prominently as a radical departure from the old stereotyped treatise on operative surgery. There is no classification under chapter heads but the material is exceedingly well arranged and there is little duplication or overlapping.

Surgical literature has been thoroughly searched and nothing omitted of any importance and due credit is given to surgeons where it has seemed called for, but there is a refreshing absence of proper name nomenclature as applied to operative procedures, methods and instruments, for the reason as the author states "all of them are the product of a long series of antecedent workers" and most instruments and procedures, bearing proper names, were used before the time of the individual whose name they bear. The illustrations (2400) are with few exceptions original and their artistic skill and clearness add greatly to the value and lucidity of the text. There is no Surgeon or Practitioner who reads this book who will not be better for the reading as it is constantly appealing to the higher and more lofty ideals in a determined effort to aid those surgically afflicted.

Vol. 1. Deals with general principles, antiseptics, surgical materials, anesthetics, wounds, inflammations, surgical fevers and infections, fistulas, sinuses, ulceration, gangrene, nutritive disturbances, tumors, the vascular system, the osseous system, muscles, skin, nerves, etc.

Vol. II. The head, spine, neck, thorax, breast, abdomen.

Vol. III. Hernia, rectum, anus, vermiform appendix, liver and gallbladder. Genito-urinary organs, the upper extremity, pelvis, lower extremity, amputations, plastic and cosmetic surgery. The new born, electricity and radiation, injuries from electric currents, gas poisoning, first aid, bandaging and the economics of surgical treatment.

CARROLL W. ALLEN.

PUBLICATIONS RECEIVED

F. A. **DAVIS COMPANY.** Philadelphia, 1919.
The Medical Treatment of Cancer, by L. Duncan Bulkley, A. M., M. D.

P. **BLAKISTON'S SON & CO.** Philadelphia, 1919.
Plastic Surgery. Its Principles and Practice. By John Staige Davis, M. D., F. A. C. S.

J. B. **LIPPINCOTT COMPANY.** Philadelphia and London, 1919.
Atlas of Operative Gynecology, by Barton Cooke Hirst, M. D.

W. B. **SAUNDERS COMPANY.** Philadelphia and London, 1919.
The Medical Clinics of North America. July, 1919. Vol. 3, No. 1.
The Surgical Clinics of Chicago. August, 1919. Vol. 3 No. 4.

FORBES & COMPANY. Chicago, 1919.
The Health of the Teacher, by William Estabrook Chancellor.

HISTORICO-MEDICAL PRESS. New York, 1919.
The Don Quixote of Psychiatry, by Victor Robinson.

WASHINGTON GOVERNMENT PRINTING OFFICE. Washington D. C., 1919.
Public Health Reports. Vol. 34, Nos. 36, 37, 38 and 39.

SERVICE AND REGULATORY ANNOUNCEMENTS. U. S. Department of Agriculture, Bureau of Chemistry.

REPRINTS.

A Plan for the Eradication of Venereal Diseases in Localities; Eradication of Tuberculosis in Localities, by Edmond Souchon, M. D., H. F., A. C. S.

Cardiovascular Response to Infection, by Samuel E. Earp, M. D., M. S.

Frederick Gaertner, A. M., M. D., LL. D., etc., Physician, Surgeon and Pathologist.

What we know about Cancer. A Handbook for the Medical Profession. (American Society for the Control of Cancer, N. Y.)

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for September, 1919.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	5	------	5
Intermittent Fever (Malarial Cachexia)	2	------	2
Smallpox	------	------	------
Measles	------	------	------
Scarlet Fever	------	------	------
Whooping Cough	------	------	------
Diphtheria and Croup	1	------	1
Influenza	4	2	6
Cholera Nostras	------	------	------
Pyemia and Septicemia	1	------	1
Tuberculosis	32	27	59
Cancer	31	7	38
Rheumatism and Gout	------	------	------
Diabetes	7	1	8
Alcoholism	------	------	------
Encephalitis and Meningitis	2	------	2
Locomotor Ataxia	2	------	2
Congestion, Hemorrhage and Softening of Brain	15	11	26
Paralysis	3	1	4
Convulsions of Infancy	------	------	------
Other Diseases of Infancy	7	11	18
Tetanus	------	------	------
Other Nervous Diseases	2	------	2
Heart Diseases	52	21	73
Bronchitis	1	2	3
Pneumonia and Broncho-Pneumonia	11	12	23
Other Respiratory Diseases	2	2	4
Ulcer of Stomach	------	------	------
Other Diseases of the Stomach	2	3	5
Diarrhea, Dysentery and Enteritis	13	9	22
Hernia, Intestinal Obstruction	3	------	3
Cirrhosis of Liver	4	3	7
Other Diseases of the Liver	1	------	1
Simple Peritonitis	------	1	1
Appendicitis	5	------	5
Bright's Disease	17	12	29
Other Genito-Urinary Diseases	11	7	18
Puerperal Diseases	4	4	8
Senile Debility	------	------	------
Suicide	3	------	3
Injuries	24	13	37
All Other Causes	17	30	47
TOTAL	284	179	463

Still-born Children—White, 17; colored, 27; total, 44.

Population of City (estimated)—White, 283,000; colored, 106,000; total, 389,000.

Death Rate per 1000 per annum for Month—White 12.04; colored, 20.26; total, 14.28. Non-residents excluded, 11.81.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure..... 29.97
Mean temperature..... 80.
Total precipitation..... 2.93 inches
Prevailing direction of wind, northeast.